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Abstract

A total of 332 annotated references pertaining to media aspects of training are organized under the following headings: (1) Audiovisual Theory and Research, (2) Audiovisual Methods (General), (3) Audiovisual Equipment (General), (4) Computers in Instruction, (5) Television Instruction, (6) Videotape Recordings, (7) Television Facilities, (8) Radio Instruction, (9) Telephone Instruction, (10) Film Instruction, (11) Film Sources, (12) 8-Millimeter Films, (13) Filmstrips, (14) Slides, (15) Audiotape Recordings, (16) Overhead Projections, Transparencies, (17) Visual Aids--Design and Use, (18) Facilities, (19) Learning Resource Centers, (20) Multimedia Instruction--Rationale, (21) Multimedia Facilities and Equipment, (22) Auto-Instructional Laboratories, (23) Dial Access Retrieval Systems, (24) Some Administrative Factors, and (25) Guides, Other Sources. A subject index provides further assistance in locating entries. Bibliographies on other aspects of training methodology are available as VT 009 577, VT 009 579, and VT 009 580. (JK)

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HEALTH
training METHODOLOGY

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PART IV: AUDIOVISUAL THEORY, AIDS, AND EQUIPMENT

An Annotated Bibliography

VT009576

This annotated bibliography is the fourth of four indicating current thought on training methodology. Content for the four publications was selected from over 6,000 items. Most were published from January 1960 to March 1968. A few earlier items are also included because of their significance. Some useful material had to be omitted because of budgetary limitations related both to search and final printing; the sheer scope of the field precluded complete coverage of the literature. Certain annotations were borrowed from other publications (details are explained on the Credits page).

In the expectation that these bibliographies will be ongoing, the project administrators (listed in the Introduction) welcome comments and suggestions with respect to additions, deletions, classification system, indexing, and technical or typographical errors.

TRAINING METHODOLOGY

Part IV: Audiovisual Theory, Aids and Equipment

An Annotated Bibliography

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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INTRODUCTION

This bibliography pertains to the media aspects of training and contains selected references on audiovisual theory and methods, aids, facilities, and equipment. It is the fourth of a group of four on training methodology. References in all four are arranged in classified order, annotated, and indexed. Additional information about concepts emphasized in this publication may be located by reference to indexes of other publications in the group. (In some references coverage of a particular concept was secondary or even peripheral to the major topic, but its inclusion was noted in the indexing to emphasize relationships.)

Other titles in the group are:

Training Methodology–Part I: Background Theory and Research

Training Methodology–Part II: Planning and Administration

Training Methodology–Part III: Instructional Methods and Techniques

In a related group of classified, annotated, and indexed bibliographies on mental health inservice training, training concepts are highlighted in annotations and indexing. The group consists of three publications:

Annotated Bibliography on Inservice Training for Key Professionals in Community Mental Health

Annotated Bibliography on Inservice Training for Allied Professionals in Community Mental Health

Annotated Bibliography on Inservice Training in Mental Health for Staff in Residential Institutions

These seven publications were developed as a joint effort of the National Institute of Mental Health and the National Communicable Disease Center of the Health Services and Mental Health Administration, Public Health Service, U.S. Department of Health, Education, and Welfare. The project was administered by the National Institute of Mental Health's Community Mental Health Centers Staffing Branch of the Division of Mental Health Service Programs; the Continuing Education Branch of its Division of Manpower and Training; and the Training Methods Development Section of the National Communicable Disease Center's Training Program.

ACKNOWLEDGMENTS

Due to the nature of this series of publications, the amount of coordination and cooperation required for its development, and the range of skills employed in getting it published, the following persons should be recognized: Miss Patricia Rogers, Technical Information Specialist (Education), Training Methods Development Section, Training Program, National Communicable Disease Center–compiler and project supervisor; Dr. Ross Grumet, Psychiatrist, Region IV Mental Health Service–technical reviewer; Mr. Alfred R. Kinney, Jr., Chief, Training Methods Development Section, Training Program, National Communicable Disease Center–advisor; Mrs. Anne W. Morgan, Health Educator, Region IV Office of Comprehensive Health Planning–technical reviewer; Dr. Robert D. Quinn, Staff Psychologist, Community Mental Health Centers Staffing Branch, Division of Mental Health Service Programs, National Institute of Mental Health–NIMH coordinator; Dr. Dorothy Schroeder, Professor of Social Work, University of Michigan–consultant; Mrs. Betty S. Segal, Evaluation Specialist, Training Methods Development Section, Training Program, National Communicable Disease Center–technical reviewer; Miss Marguerite Termini, Associate Professor of Psychiatric Nursing, University of Delaware–consultant; Dr. Thomas G. Webster, Chief, Continuing Education Branch, Division of Manpower and Training, National Institute of Mental Health–advisor. Original annotations and abstracts were written by seven graduate students and technical assistants employed especially for the project. These individuals were: Miss Connie Benson, Miss Mary Lavinia Campbell, Miss Rosemary Franklin, Miss Sharon Grilz, Miss Gale Lawrence, Mr. Garrett McAinsh, and Mr. Stephen Von Allmen.

CREDITS

Permission to reprint abstracts and annotations from the following sources is gratefully acknowledged:

(ASTD):	"Training Research Abstracts," edited by Gerald H. Whitlock. IN **Training and Development Journal**, published by the American Society for Training and Development, January 1966 to date. Separately published by the Society before January 1966.
(ASW):	**Abstracts for Social Workers.** Albany, N.Y.: National Association of Social Workers. Quarterly.
(ERIC 1):	ERIC Clearinghouse on Educational Media and Technology. **A Basic Reference Shelf on Instructional Media Research**, by Jack V. Edling (Series 1. Using Educational Media: Guides to the Literature). Stanford, Calif.: Stanford University, Institute for Communication Research, November 1967. 10 pp.
(ERIC 2):	ERIC Clearinghouse on Adult Education. **Adult Basic Education, No. 1 Current Information Sources.** Syracuse, N.Y.: Syracuse University, November 1967. 17 pp.
(HumRRO):	Smith, Robert G., Jr. **An Annotated Bibliography on the Design of Instructional Systems** (Technical Report 67-5). Alexandria, Va.: The George Washington University, Human Resources Research Office, May 1967. 132 pp.
(USCSC 1):	U.S. Civil Service Commission Library. **Personnel Literature.** Washington, D.C.: the Library. Monthly.
(USCSC 2):	U.S. Civil Service Commission Library. **Training Methods and Techniques** (Personnel Bibliography Series Number 19). Washington, D.C.: the Library, January 1966. 53 pp.

ERRATA SHEET

Training Methodology
Part IV: Audiovisual Theory, Aids, and Equipment

p. 4	Reference #15:	Instead of repeating the entry for reference #14 (Cue and response functions of pictures and words) the reference should be: LUMSDAINE, ARTHUR A. Design of training aids and devices. IN Folley, John D., Jr. (ed.). Human factors methods for system design. Pittsburgh: American Institutes for Research, 1960. pp. 217-290. The abstract for this entry should read: A general treatment of the design of training aids and devices for effective training is presented. Major topics considered are (1) some basic considerations in training device design, (2) identifying the requirements for training, (3) types of training devices particularly suitable for various classes of training objectives, (4) classroom aids, (5) some special factors in design and use of training devices, and (6) procedures in the design of training devices. (HumRRO)
p. 6	Reference #22:	author: NORBERG, KENNETH (ed.), not NORBERT, KENNETH
p. 6	Reference #24:	place of publication: Alexandria, not Alexandia
p. 7	Reference #28:	The end of the summary, beginning at the third line from the bottom, should read: "...received. The most important implication of the transactional viewpoint is that we must continually examine our assumptions about what we are doing, our values, our beliefs, and what we "know" about the world."
p. 9	Reference #35:	publisher: Macmillan, not Macmillian
p. 11	Reference #43:	first author: THOMAS, R. MURRAY, not THOMAS, R. MURRY
p. 15	Reference #60:	225 pp., not 73 pp.
p. 15	Reference #63:	pp. 16-17, not pp. 16-18
p. 16	Reference #68:	pp. 23-53, not pp. 25-53
p. 17	Reference #72:	Bold type for the periodical source was reversed
p. 18	Reference #77:	issue number 22, not 2
p. 28	Reference #124:	issue 1, January 15, 1967
p. 30	Reference #130:	last group of inclusive pages is: 301-332, not 301-326
p. 42	Reference #179:	pp. 31-33, not pp. 31-34
p. 43	Reference #183:	p. 510, not p. 512
p. 43	Reference #185:	p. 2, not p. 6
p. 44	Reference #189:	date of publication: 1958
p. 45:	Reference #196:	79 pp.

CONTINUED ON REVERSE SIDE

AUDIOVISUAL THEORY AND RESEARCH

ALLEN, WILLIAM H. Research verifies the value of audio-visual materials. **National Education Association journal** 41:1, January 1952. p. 49.

Although there are many unanswered questions about audiovisual materials, available research studies lead to certain conclusions which are briefly discussed in this article. Audiovisual materials have value; they will not replace the teacher; they are interesting; both bright and dull pupils learn from them; they influence the attitudes of children. Studies with regard to methods of using audiovisual materials indicate that, in general, the following conclusions are justified: (1) the use of a variety of teaching materials will lead to greater learning; (2) teachers' introductions to films and other types of class preparation increase learning from films; (3) showing the film a second time will increase the learning; (4) student participation increases learning with audiovisual materials; (5) audiovisual materials should usually be used in class rather than in the auditorium. **(1)**

ALLENDER, JEROME S. The importance of recorded communication. **AV communication review** 15:4, Winter 1967. pp. 412-422.

In recent years, forms of recorded communication (other than books) such as motion pictures, slides, stereo-slides, filmstrips, microfilm, television, and tape recordings have been generally accepted as important educational media. If comparably effective for any given educational objective, recorded communication is more efficient than teachers in that it allows more education for more people with less cost. Benefits to education automatically accrue when a greater balance between teachers teaching and good instructional materials is maintained. Recorded communication is typically unresponsive in that it does not respond to changes in the environment or in students, but creative types of textual materials in the form of programmed texts have already been invented that are able to teach and respond to the individual. If instructional materials were utilized to present many experimental kinds of teaching ideas, only the addition of careful evaluation in realistic learning situations would be necessary to ensure major improvements in education. The expanded use of computers as teaching devices for presenting new instructional materials will be invaluable. References are included. **(2)**

CAMPEAU, PEGGIE L. Selective review of literature on audiovisual media of instruction. IN Briggs, Leslie J., Peggie L. Campeau, Robert M. Gagné, and Mark A. May. **Instructional media: a procedure for the design of multi-media instruction, a critical review of research, and suggestions for future research.** Pittsburgh: American Institutes for Research, 1967. pp. 99-142.

A review of educational literature considered most pertinent to the selection and use of appropriate audiovisual media for achieving given learning requirements is presented. Three types of research are reported: comparative effectiveness studies (comparison of a new medium to conventional methods or to other new media); utilization studies (comparing methods of using a given medium); and basic studies (highly analytical studies which seek to explore media and learner variables which may be related to achievement). Included are studies conducted in educational institutions from elementary school through the university. Excluded are production studies, military research, attitudinal and motivational research, and media-preference research. Research literature of the three types is reported for each of the following: television; motion pictures; programmed instruction (primarily linear, paper and pencil programs); filmstrips, slides, transparencies, and other pictorial presentations; radio and recordings; three-dimensional models; and field trips. Limitations of current educational research and a suggested strategy for future research on media conclude the chapter. **(3)**

ELY, DONALD P. (ed.). The changing role of the audio-visual process in education: a definition and a glossary of related terms (Monograph No. 1 of the Technological Development Project of the National Education Association of the U.S.A.). **AV communication review** 11:1, supplement 6, January-February 1963. 148 pp.

"The increasing use of the audiovisual label over the last thirty years has created a term with varied meanings. Some have defined the audiovisual field by listing machines, by listing sensory experiences, or by indicating what audiovisual is not, i.e., whatever is verbal. As newer developments in technology have been applied to the problems of education, the audiovisual label has become less useful to describe the field with accuracy. A call for unity and direction has come from many sources within and without the audiovisual field. This monograph attempts to define the broader field of instructional technology which incorporates certain aspects of the audiovisual field" (from editor's introduction). Part I is entitled "Definition." Chapter I discusses the climate which has given rise to the need for definition. Chapter II reviews the development of the audiovisual field during the past thirty years as a backdrop for the definition. Chapter III presents a definition. The rationale supporting the definition is outlined with particular reference to contributions from communication theory and learning theory. Models are used as reference points. Chapter IV applies the definition to the functions of personnel within the field, suggesting certain realignments based on new insights and directions derived from the definition. Part II, entitled Terminology, contains an introduction, bibliographies, and the alphabetical listing of terminology. The appendix contains special terms grouped under the following headings: AV Communication and Learning; Audio Reproduction; Broadcasting; Communication and Information Theories; Computers in Instructional Settings; Electronic Laboratories: Photography and Cinematography; Programmed Instruction and Teaching Machines; Technological Developments; Visual Media (Projected and Non-Projected). **(4)**

FINCH, GLEN (ed.). **Education and training media: a symposium** (Publication no. 789). Washington, D.C.: National Research Council, 1960. 206 pp.

This symposium brought together a group of people from different disciplines and from a variety of positions in industry, government, and the academic community, all of whom were united by an interest in applied human learning. Introductory remarks indicate the concern of the symposium: (1) both in education and training, the selection, design, and use of supporting media is an important problem; (2) a considerable body of scientific information is available concerning the various media which might be used in implementing the education and training process; (3) much of the available scientific information is not being used effectively; (4) this available scientific information, if properly utilized, could make substantial improvements in the efficiency of the nation's educational and training programs. Included are the following papers: (1) The Role of Media in Education and Training, by William A. McClelland; (2) The Instructor, by W. J. McKeachie; (3) Textbooks and Methodology, by John D. Folley, Jr.; (4) The Job as a Medium for Training, by Joseph A. Tucker, Jr.; (5) Graphic Aids, Models, and Mockups, by Arthur A. Lumsdaine; (6) The Instructional Film, by Sol M. Roshal; (7) Teaching by Television, by Joseph H. Kanner; (8) Part Trainers, by Jack D. Adams; (9) Teaching Machines, by Leslie J. Briggs; and (10) Summing Up: Comments Toward the Future, by Arthur W. Melton. **(5)**

FINN, JAMES D. A new theory for instructional technology. **AV communication review** 8:5, September-October 1960. pp. 84-90.

Current trends in educational technology pull in two directions, both requiring organization and control. One trend is toward a mass instructional technology which is governed by machines and systems, especially television. There are four types of instructional television: (1) broadcast on an educational channel; (2) broadcast on a commercial channel; (3) closed-circuit to supplement instruction; and (4) closed-circuit as replacement for classroom teachers. In all cases the desire is to reach more students with fewer teachers or to obtain quality instruction. In opposition to this trend of mass instruction is a growing technology for individual instruction, especially the teaching machine. There are five types of individual instruction: (1) individual reading papers and similar devices; (2) individual viewing and listening equipment for existing slides, filmstrips, motion pictures, and recordings; (3) language laboratories; (4) specifically programmed printed materials such as scrambled textbooks; and (5) true teaching machines containing carefully worked out verbal or pictorial programs with various ingenious mechanical or electronic arrangements to test student reaction and inform him of his progress. Instructional technology is here to stay, and it is gaining momentum. The problem is not how to live with it, but how to control it so that the proper objectives of education may be served and the human being remain central in the process. The thrust and energy of technology will force a greater organization upon us at every point at which it is applied to instruction. Instructional technology offers all teachers the opportunity to become highly professional. **(6)**

FINN, JAMES D. A possible model for considering the use of media in higher education. **AV communication review** 15:2, Summer 1967. pp. 153-157.

The newer educational media tools can be applied at several levels at colleges and universities: (1) the tool level provides the instructor with certain devices and materials (i.e., overhead projector) with which he may do a better job; (2) the data level refers to information of all kinds no longer stored exclusively in conventional print form (i.e., microfiche cards, computer tapes); (3) the behavioral control level is the area of programmed learning; (4) the meaning level is the applicability of a wide range of educational media to the problem of building meaning into abstractions; (5) the research level is the complement of the data level, the researcher needing a range of media support merely to do his research; and (6) in the systems level, instructional material covering an area of subject matter in a systematic way is designed to achieve rather precise objectives. **(7)**

FINN, JAMES D., BOYD M. BOLVIN, and DONALD G. PERRIN. **A selective bibliography on new media and instructional technology** (Staff paper number one, Instructional Technology and Media Project). Los Angeles: University of Southern California, School of Education, April 1964.

This unannotated bibliography on new media and instructional technology has the following 18 major divisions: (1) Publications of the Technological Development Project of the National Education Association (1960-1963) and Related Articles; (2) General Audiovisual References; (3) Audiovisual Equipment; (4) General Educational Implications of Instructional Technology; (5) Research Summaries and Comment; (6) Communications Theory; (7) Learning Theory and the New Media; (8) Specific Newer Technologies, including (a) Television, (b) Language Laboratories, (c) Teaching Machines and Programmed Instruction, (d) 8-mm Sound Film, (e) Instructional Systems, (f) Computers in Education, and (g) Educational Data Processing; (9) General References on Computers of Interest to Educators; (10) Information Storage and Retrieval; (11) School Buildings and the New Technology; (12) Articles Critical of Instructional Technology; (13) Newer Developments Leading Toward the Future; (14) Psychological Testing; (15) Professional Rights and Responsibilities of Teachers (including copyrights and patents); (16) Information on General Educational Implications of Automation; (17) Bibliographies, Guides, and Indexes; and (18) Further Information–Periodicals. *(HumRRO)* **(8)**

GROPPER, GEORGE L. Learning from visuals: some behavioral considerations. **AV communication review** 14:1, Spring 1966. pp. 37-69.

Two studies are reported, one was an investigation of response control during visual presentations, and one was on the integration of visual and verbal presentations. In the first study an entire topic was covered in a self-contained, entirely pictorial lesson and also in a self-contained, entirely verbal lesson. In the second study only one or two concepts or principles were covered in each visual segment and then again in each verbal segment. A conclusion reached was that complex and highly abstract concepts and principles can be acquired on the basis of programmed, solely visual demonstrations. The two studies represent a systematic attempt to apply learning theory considerations to the use of visuals. Tables and references are included. **(9)**

GROPPER, GEORGE L. **Techniques for programming visual demonstrations.** Pittsburgh: American Institutes for Research, 1966. 8 pp.

The fundamental characteristics of demonstrations that teach verbal concepts and principles differ from those that teach procedural motor skills. A variety of examples may be used to teach a generalized response to classes of events. To teach a particular chain of responses (such as assembling a motor) an example may be shown and even repeated. Inclusion or exclusion of an event within a class of events, or describing relationships among events, involves discrimination of concepts and recognition of principles. Identification of particular parts and the relationships that govern the assembly of the parts involves discrimination in procedural learning. Because these behavior changes differ, demonstrations to bring them about must be programmed differently. But all presentations must be prepared in a way that will guarantee certain attending and observing behaviors, because active responses are contingent on such prior behavior. Visual presentations can contain a single stimulus and/or a complex pattern of stimuli. Discrimination can be taught by split-screen techniques which simultaneously contrast stimuli. The particular integration of words and visuals is crucial to the cue value of presentations. Emphasis on motor parts in teaching procedural/motor skills (as in tying knots) may influence the choice of the subjective camera angle. When using models, it appears important to periodically shift back to a view of the real object to ensure correct transfer. **(10)**

GROPPER, GEORGE L. Why is a picture worth a thousand words? **AV communication review** 11:4, July-August 1963. pp. 75-95.

This article, containing some proposals for an analysis of the behavior which occurs during learning from visual materials, concerns itself primarily with the role of nonverbal, visual materials (including graphic, pictorial, or demonstration presentations). How such nonverbal, visual materials may be used to promote the acquisition, retention, and transfer of the responses defined as knowledge are explored. The value of fulfilling these functions derives from their capacity to cue and to reinforce specified responses and to serve as examples. Two general classes of visual aids used to stimulate student response are criteria visuals and intermediary visuals. Both classes of visuals serve either of the two general functions: (1) a cueing/reinforcing function, or (2) an example function. **(11)**

HARRISON, J. A. (ed.). **European research in audio-visual aids. Part II: Abstracts.** London and Strasbourg: National Committee for Audio-Visual Aids in Education, on behalf of the Council of Europe, 1966.

The most extensive summary of European research in this field–230 abstracts of studies conducted between 1945 and 1963. The studies cover film, television, radio, teaching machines, recordings, museums, still projected media, non-projected media, and perception. *(ERIC 1)* **(12)**

Instructional materials: Educational media and technology. **Review of educational research** 38:2, April 1968. pp. 111-196.

This is a review of the literature for the six-year period since April 1962. [Located too late for indexing in this bibliography.]

Learning from visuals: the application of programming principles to visual presentations (film). Pittsburgh: American Institutes for Research. 16mm, sound, color, 36 minutes.

The functions which visuals in graphic, pictorial, or demonstrational form can serve in instruction are shown and discussed. How the behavioral principles underlying programmed instruction may be applied to the use of either static or dynamic visuals–whether on the printed page, on film, or on television–is illustrated. **(13)**

LUMSDAINE, A. A. Cue and response functions of pictures and words. IN May, Mark A. and Arthur A. Lumsdaine. **Learning from films.** New Haven, Conn.: Yale University Press, 1958. pp. 123-149.

The study reported in this chapter was focused on the learning of simple rote associative connections when the learning materials presented were either pictures of objects or printed words representing objects. Employing the mode of learning of paired associates, two contrasting populations of subjects were used–college students and grammar school pupils in the seventh and eighth grades. The procedures used for both groups were similar, and the basic experimental design was identical. Figures and tables give various explanations of the experiments, including the overall pattern of results. The basic pattern found is fairly similar for college and grade school subjects. The main findings were that in paired-associates learning of verbal responses, pictorial representatives of objects make better stimulus terms than printed words naming the objects, and printed words are better than pictures as response terms. The research suggested that the relative advantages of the verbal response term may be least at the extremes of the ability range. **(14)**

LUMSDAINE, A. A. Cue and response functions of pictures and words. IN May, Mark A. and Arthur A. Lumsdaine. **Learning from films.** New Haven, Conn.: Yale University Press, 1958. pp. 123-149.

The study reported in this chapter was focused on the learning of simple rote associative connections when the learning materials presented were either pictures of objects or printed words representing objects. Employing the mode of learning of paired associates, suitable for various classes of training objectives, (4) classroom training aids, (5) some special factors in design and use of training devices, and (6) procedures in the design of training devices. *(HumRRO)* **(15)**

LUMSDAINE, A. A. Instruments and media of instruction. IN Gage, N. L. (ed.). **Handbook of research on teaching.** Chicago: Rand McNally & Company, 1963. pp. 583-682.

This chapter deals with instructional media primarily as objects of experimental research. The term "instructional media," as used, refers to a class of instructional resources with the common characteristic of presenting instructional sequences having stimulus features and response provisions. Materials dealt with include: motion picture films, tape recordings, filmstrips, television and self-instructional programs for presentation by a teaching machine or related device. Some research on textbooks and on visual aids as part of an integrated instructional presentation is discussed. Some of the categories of research considered are: (1) techniques for elicitation of active learner response and its role in learning from sequenced instruction; (2) methods for guiding and prompting learner responses; (3) the character of response required of the learner; (4) knowledge of results, feedback, and reinforcement; (5) the organization and content of practice and of repetition and review sequences; and (6) factors of sequencing, rate, and pacing in verbal instruction. Sections in the chapter include: Current Status of Major Instructional Media; Purposes and Types of Experimental Research; Evaluative Studies; Controlled Variation of Specific Factors in Design and Use of Instructional Media; Status of Research and Development on Various Media; Factors Influencing the Effectiveness of Active-Response Procedures; Stimulus-Control Factors in Presentation of Materials; Content and Organization of Instruction; Some Verbal Factors in Instruction; Motivation-Incentive-Interest Factors; Methodological Problems in Experiments on Instructional Media; Some Statistical and Sampling Problems; Replication in Research Design; Group Versus Individual Testing with Verbal and Pictorial Materials; The Rationale of Experimentation. A bibliography of two hundred fifty-two items concludes the chapter. **(16)**

LUMSDAINE, ARTHUR A. and MARK A. MAY. Mass communication and educational media. IN Farnsworth, Paul R., Olga McNemar, and Quinn McNemar (eds.). **Annual review of psychology**, vol. 16. Palo Alto, Calif.: Annual Reviews, Inc., 1965. pp. 475-534.

The audiovisual media of communication and instruction including films, open-or closed-circuit television, recordings, and other media using visual materials projected on a screen by optical or electronic means, and electrically transmitted or recorded sound used alone or to accompany these visual materials, are discussed. General headings included in the article are: (1) Background Papers and General Information on Media; (2) Use and Effects of Broadcast Media; (3) Use and Effects of Educational Media; (4) Evaluative Studies of Media Program Effects; and (5) Experimental Investigations of Instructional Variables. Among the concluding comments are (1) there is a substantial increase in research under the general heading of "programmed learning"; (2) the influence of some general concepts has received impetus from the work in programmed instruction, but these concepts are now being increasingly applied also in the mass media of instruction; (3) there is a growing tendency to recognize the status of studies of the effects of particular programs as product-testing rather than methods-testing and to devote increased effort to such applied product-testing work; and (4) there is a growing sophistication concerning what can and cannot be accomplished by research. A bibliography is included. **(17)**

MEIERHENRY, WESLEY C. (ed.). Learning theory and av utilization. **AV communication review** 9:5, supplement 4, September-October 1961.

A collection of papers on learning theory and the utilization of audiovisual devices. Papers include: Implications of Gestalt Psychology for AV Learning, by A. S. Luchins; Stimulus-Response Psychology and Audiovisual Education, by H. H. Kendler; Learning and the Technology of Instruction, by R. Glaser; Motivation and Communication Processes, by F. J. McDonald; Human Learning and Audiovisual Education, by L. Postman; and Comment and Summary: A Mine of Possible Applications, by J. Deese. *(HumRRO)* **(18)**

MILLER, NEAL E. **Graphic communication and the crisis in education.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1957. 120 pp.

This book is divided into two parts. Part I, The Barriers to Optimum Use and Suggestions for Overcoming Them, discusses a number of problems facing schools in the use of graphic communication. Some of the chapter headings in Part I are: Difficulties in Procuring Existing Material; Integration of Graphic Material with the Textbook; Acute Curriculum Problems; The Teacher; Practical Demonstrations of Effectiveness; and Securing Support from a Wider Audience. Part II, Scientific Principles for Maximum Learning from Motion Pictures, is an attempt to integrate the findings from audiovisual communication research into the organization of a theory of learning. Chapter titles are: Need for Research Guided by Theoretical Analysis; Drive: The Student Must Want Something; Cue: The Student Must Notice Something; Response: The Student Must Do Something; Reward: The Student Must Get Something He Wants; and Problems Involving a Number of Factors. A bibliography is included. **(19)**

MOLSTAD, JOHN A. The controlled experiment. **Audiovisual instruction** 11:6, June-July 1966. pp. 494-498, 500, 502.

Interest in research on topics concerned with audiovisual communication continues to grow; at the DAVI convention four separate research sessions were needed to present the twenty-one research reports. Certain new trends emerged in types of studies being conducted by audiovisual researchers. The majority (12 out of 21) were experimental studies involving experimental and control groups and accepted statistical analyses. Systems approaches, simulation techniques, and data processing procedures related to instructional problems provided evidence of the growth and greater sophistication of research in the field. Several studies are reported as examples. **(20)**

NATIONAL PROJECT IN AGRICULTURAL COMMUNICATIONS. **Research, principles, and practices in visual communication.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1960. 160 pp.

The National Project in Agricultural Communications prepared this volume as a basic reader in communication, with emphasis on the visual aspects, to be used in conjunction with training programs for state and field staffs of the Agricultural Extension Services. Contents are: (1) Process: The Conceptual Basis for Communication Study, by John Ball; (2) The Interaction Model: Perception and Communication, by George Gerbner; (3) Communication Models, by Erwin P. Bettinghaus; (4) The S-M-C-R Model of Communication, by Erwin P. Bettinghaus; (5) The Interpreter Model, by Erwin P. Bettinghaus; (6) Communication Effects, by J. Stacy Adams; (7) Perception and Visual Communication, by I. A. Taylor; (8) Some Other Theories of Perception, by Martin Krampen; (9) A Basis for Decisions in Planning Communications, by A. A. Lumsdaine; (10) Research in Audio-Visual Communication, by John Oliver Cook; (11) Perception and Design, by I. A. Taylor; (12) Selection and Use of Visual Media, by Robert C. Snider; (13) General Principles of Evaluation, by Nathan Maccoby; and (14) Administration: Visual Communication Programs, by Hal R. Taylor. A list of names and associations of contributing authors, an eight-page bibliography, and a subject index are included. **(21)**

NORBERT, KENNETH (ed.). Perception theory and AV education (entire issue). **AV communication review**, supplement 5, 10:5, 1962. 108 pp.

Papers in this supplement are: Introduction, by Kenneth Norberg; What Do the Eyes Contribute?, by Rudolf Arnheim; The Psychophysics of Pictorial Perception, by Julian Hochberg; Perception, Communication, and Educational Research: A Transactional View, by Hans Toch and Malcolm S. MacLean, Jr.; and Human Communication, by Franklin Fearing. **(22)**

NORBERG, KENNETH. Visual perception theory and instructional communication. **AV communication review** 14:3, Fall 1966. pp. 301-317.

This discussion of perception theory as related to instructional media is focused upon the raw visual experience (excluding verbal and other abstract symbols) that enters into instructional communication and learning. The article reviews literature that has been written in the field. References are included. **(23)**

ROOT, ROBERT T. **An annotated bibliography of research on training aids and training devices** (Staff memorandum, HumRRO Division No. 1, Systems Operations). Alexandia, Va.: Human Resources Research Office, August 1957.

A survey of the literature up to December 1956 forms the basis for an annotated bibliography of approximately 350 titles. The major topics are training devices, training aids, requirement and evaluation methodology, and basic research and its applications. *(HumRRO)* **(24)**

ROSSI, PETER H. and BRUCE J. BIDDLE (eds.). **The new media and education: their impact on society.** Chicago: Aldine Publishing Co., 1966. 417 pp.

The contributions to this volume were designed to be essays in speculation on the roles that may be played by the new educational media ("any form of device or equipment which is normally used to transmit information between persons . . . for educational purposes") in American society of the next few decades. The essay titles indicate the contents: Part I, Overview–(1) Educational Media, Education, and Society, by B. J. Biddle and P. H. Rossi; Part II, Recent and Projected Technological Developments–(2) New Dimensions in Instructional Media, by N. Balanoff; (3) Simulation and Games, by J. A. Robinson; (4) Programmed Instruction and Teaching Machines, by L. M. Stolurow; Part III, The Impact of the New Media on School Systems–(5) The Economics of Education, by H. F. McCusker, Jr. and P. H. Sorensen; (6) The Social Organization of Education, by M. Janowitz and D. Street; and (7) The Physical Plant, by C. F. Lehmann; Part IV, The Impact of the New Media on Other Aspects of American Education–(8) Higher Education, by W. J. McKeachie; (9) Adult Education, by M. S. Knowles; Part V, General Implications for American Society–(10) The New Media in the Evaluation of American Education, by M. Trow; and (11) The New Media and Our Total Society, by N. N. Foote. An index and a list of references are included. **(25)**

STANFORD UNIVERSITY. **New teaching aids for the American classroom.** Palo Alto, Calif.: Stanford University, Institute for Communication Research, 1960. 173 pp.

This book is a collection of the views of notable scholars of instructional media as discussed at a symposium on the state of research in instructional television and tutorial machines held in November, 1959, at Stanford University. Among the papers collected are the following: Social Trends and Problems for Tomorrow's School, by Ralph W. Tyler; The Nature of Tomorrow's Classroom, by Roy M. Hall; Old and New Teaching Aids, by William E. Spaulding; Learning Theory and Its Applications, by Ernest R. Hilgard; Sociological Perspectives on the Use of New Educational Media, by John W. Riley, Jr. and Matilda White Riley; Television in the Life of the Child–Implications for the School, by William Schramm; Approaches to Promising Areas of Research in the Field of Instructional Television, by C. R. Carpenter; The Usable Residue of Educational Film Research, by Charles F. Hoban; The Development and Role of Teaching Aids in the Armed Forces, by J. H. Kanner; and The Development of Teaching Machines and Programed Self Instruction, by A. A. Lumsdaine. [A bibliography is included.] *(ASTD)* **(26)**

TAYLOR, I. A. Perception and design. IN National Project in Agricultural Communications. **Research, principles, and practices in visual communication.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1960. pp. 107-118.

The visualization process should be understood as a mental process rather than as a set of techniques.

The ability to visualize is highly creative, involving the following phases: preparation, incubation, illumination, and elaboration or execution. In visualizing, the creative process includes: (1) determining the message; (2) determining the elements involved in the communication; (3) translating the ideas into visual symbols; and (4) grouping and determining the general relationship. There are structural and functional considerations in producing a design, the structural ones related to the construction of the visual presentation and the relationship between its elements, and the functional ones involving the attention-getting and mood-influencing properties produced. Figures are included. Assuming that the major problems involved in visualizing and applying structural and functional principles are solved, the final problem of adequacy of design remains. The adequacy depends upon (1) the number, size, positioning, brightness, and color contrast of the constituent elements, and (2) the major overall characteristics: speed of recognition, degree of comprehension, general efficiency, visibility, degree of fatigue produced, and attractiveness. **(27)**

TOCH, HANS and MALCOLM S. MacLEAN, Jr. Perception, communication, and educational research; a transactional view. **AV communication review** 10:5, September-October 1962. pp. 55-77.

The transactional view of perception is that each percept, from the simplest to the most complex, is the product of a creative act. The raw material for this creation is lost to us since, in the very act of creating, we modify it. The transactional view makes possible a few statements about perception which might have special bearing on nonverbal communication: (1) shared experiences result in perceptual communalities; (2) differences in experience cause perceptual divergence; (3) perceptual differences can be readily produced; (4) any given event is differently perceived by different people; and (5) all aspects of a percept are related to one another. The transactional view has certain implications for audio-visual media. Visuals that present things simply and relevantly and with functional viewpoints and contexts will best facilitate meaningful perception and learning. Verbal explanations of visual media may inhibit rather than facilitate reinterpretation of the forms actional viewpoint is that we must continually examine our assumptions about what we are doing, our values, our beliefs, and what we "know" about the world. **(28)**

TRAVERS, ROBERT M. W. The transmission of information to human receivers. **AV communication review** 12:4, Winter 1964. pp. 373-385.

Two common assumptions concerning audiovisual materials do not fit the theoretical models developed by psychologists interested in perception and information transmission. One of these is that more information is acquired when the same information is transmitted simultaneously through both the auditory and visual modalities. The other is that other things being equal, the more realistic a presentation, the more effective will be the transmission of information. Not a single contemporary scientist supports the position of the audiovisual designers that the human being can receive more information if the information is transmitted through two sense modalities rather than one. Studies reveal a number of propositions which have implications for the design of audiovisual teaching materials: (1) no advantage is achieved by transmitting redundant information simultaneously through both auditory and visual modalities except where high speeds of transmission are involved; (2) switching from the auditory channel to the visual, or the reverse, occupies time which appears to be wasted as far as learning is concerned; (3) devices which have been used to draw attention to the information transmitted through one sense modality tend to depress the information received through another; (4) the information processing system, in its final level, involves a single channel of limited capacity which can generally handle only information from one source at a time. Information compression is a natural process which permits a limited capacity nervous system to handle a very complex environment by simplifying it. The effective transmission of information in educational situations involves, therefore, not "realism" but communications which are readily and effectively "compressed" by the receiver. The implications of research are that (1) flooding the learner with information stressing realism provides a poor learning situation; (2) the important role of the teacher is that of finding simplified representations of the environment which are compatible both with the objectives of learning and with the information handling mechanism of the learner. **(29)**

TROW, WILLIAM C. **Teacher and technology: new design for learning**. New York: Appleton-Century-Crofts, 1963.

Dr. Trow reviews the historical development of instructional media as a background to the presentation of new concepts in teaching technology. His main concern is with "... the relation between the means available for instruction and their effectiveness in the different kinds of learning experiences that are provided." *(ERIC 1)* **(30)**

AUDIOVISUAL METHODS (GENERAL)

BROWN, JAMES W., RICHARD B. LEWIS, and FRED F. HARCLEROAD. **A-V instruction: materials and methods.** 2nd edition. New York: McGraw-Hill, 1964. 592 pp.

The book is designed as a practical guide to the subject for practicing and prospective teachers. Part and chapter titles describe the contents: Part I, Background for Teaching–(1) Learning and Communication, (2) Planning for Active Learning; Part II, Selecting and Using Ready-Made Materials–(3) Resources for Active Learning, (4) Free and Inexpensive Materials, (5) Printed Text and Reference Materials, (6) Globes and Maps, (7) Filmstrips and Photographic Slides, (8) Films, (9) Radio and Recordings, (10) Television, (11) Programmed Instruction; Part III, Creating Instructional Materials–(12) Displaying, (13) Constructing, (14) Demonstrating and Experimenting, (15) Dramatizing and Discussing, (16) Recording, (17) Using Graphics, (18) Using Community Resources, (19) Real Things and Their Models, (20) Using Still Pictures, (21) Photographing, (22) Improving the Room Environment; Reference Sections–(1) Audiovisual Equipment, (2) Duplicating Processes, (3) Glossary, (4) Classified Directory of Sources. An index is included. **(31)**

DALE, EDGAR. **Audio-visual methods in teaching.** Revised edition. New York: The Dryden Press, 1954. 534 pp.

This is an illustrated text on the theory and practice of audiovisual instruction. There are three main parts. In Part I, Theory of Audiovisual Instruction, a basic introduction is presented, concentrating on the theory of learning underlying the use of audiovisual materials in teaching; chapters are included on the "cone of experience" (direct to abstract), using and evaluating materials, and basic sources of materials. In Part II, Materials for Audiovisual Instruction, a general discussion is presented proceeding from the most direct to the most abstract kinds of materials; the sections are on contrived experiences (models, mockups, objects, specimens), dramatized experiences (plays, puppetry, sociodrama, role-playing), demonstrations (apparatus, chalkboard), field trips, exhibits (displays, bulletin boards, posters), educational television, motion pictures, still pictures (photographs, illustrations, filmstrips, slides, opaque projection), radio and recordings, visual symbols (flat maps, chalkboards, sketches, cartoons, comic strips, diagrams, charts, graphs), verbal symbols, and color as an aid in teaching. In Part III, Classroom Applications of Audio-Visual Methods, an introductory chapter discusses planning, organizing, and evaluating; eight chapters follow on the use of materials in specific subject-matter fields. There are references at the end of each chapter. An index-glossary (combined) is included. **(32)**

DeKIEFFER, R. E. and LEE W. COCHRAN. **Manual of audio-visual techniques.** Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1962. 254 pp.

This manual is designed for use in workshops, short courses, seminars, or quarter and semester courses. It is divided into five units with 27 chapters in all. Titles of units and chapters describe the contents: Unit One, Toward More Effective Communication–(1) The Communication Problem, (2) Planning for the Use of Audio-visual Materials; Unit Two, Nonprojected Teaching Materials–(3) Drawing, (4) Chalkboards, (5) Flat Pictures and Picture Files, (6) Charts and Graphs, (7) Bulletin Boards, (8) Flannelboards, (9) Globes and Maps, (10) Demonstration Materials and Techniques, (11) Exhibits and Displays Including Museums, (12) Dramatic Expression, (13) The School Journey; Unit Three, Projected Teaching Materials–(14) Principles of Projection, (15) Slides and Slide Projectors, (16) Filmstrips and Filmstrip Projectors, (17) Overhead Projectors, (18) The Opaque Projector, (19) Motion Pictures and Motion Picture Projectors; Unit Four, Audio Materials and Equipment Including Television–(20) Principles of Sound, (21) Recording and Recordings, (22) Radio, (23) Central Sound Systems, (24) Television; Unit Five, The School Audio-Visual Program in Action–(25) The Learning Environment, (26) The School Systems' Audio-Visual Program, (27) Looking Forward. **(33)**

EAST, MARJORIE. **Display for learning: making and using visual materials.** New York: The Dryden Press, 1952. 306 pp.

This book is written to show teachers, as specifically and clearly as possible, how to produce visual materials and how to use them in and out of the classroom. The five divisions and chapters are: I. Theory of Display–(1) Why Use Display in Education?, (2) How Do We Prepare Displays?; II. Materials for Display–(3) The Real Thing and Its Models, (4) Pictures That Teach, (5) Your Drawings Can Teach, (6) Graphs, Charts, and Diagrams, (7) The Copy: Composing and Lettering It, (8) Clippings from the News; III. Design for Display–(9) The Tools for Design, (10) Using Design; IV. Mediums for Display–(11) Duplicating Processes, (12) The Chalkboard, (13) Slides, (14) How to Make Posters and Charts, (15) The Bulletin Board, (16) The Exhibit; and V. Appraising Display. Suggested readings and an index are included. **(34)**

ERICKSON, CARLTON W. H. **Fundamentals of teaching with audio-visual technology.** New York: The Macmillian Co., 1965. 384 pp.

Directed mainly toward undergraduate students preparing for careers as teachers, the book is concerned with instructional technology as applied professionally to the achievement of educational objectives. Fundamentals of the field are emphasized, and no particular subject-matter field or grade level is concentrated on, the intention being to stimulate all teachers to apply the fundamentals to their own unique teaching tasks. Exercises are included at the end of each chapter, and are designed to serve as a study and activity guide that will be useful in a variety of courses when used with the book as basic text. Each chapter includes a list of available technological materials for class use and a list of references. Chapter titles and section titles are: (1) The Need for Audiovisual Technology in Teaching (Eliminating Confusion about Terminology–Roles Played by AV Technology–AV Technology and the Learning Process); (2) The Array of New Instructional Media (The Traditional Media: Real Things, Models, Graphic Symbols, Motion Pictures, Projected Still Pictures, Non-Projected Still Pictures, Audio Programs–Media of More Recent Development: Television, Teaching Machines, Instructional Kits); (3) Creative Design Through Basic Principles (How to: Select AV Materials, Develop Readiness, Make Suitable Physical Arrangements, Elicit Desired Responses to Materials, Appraise AV Methods); (4) Examples of Audio-Visual Technology at Work (Starting Teaching Purposes–Applying The Basic Principles–Nine Case Studies); (5) Specific Teaching Practices Characteristic of Various Media (fifteen examples discussed, from field trips to the voice amplification process); (6) Preparing Simple Materials (eight examples discussed, from motion picture segments to overhead projector transparencies); (7) Learning to Operate the Instruments. Included are sources of materials, instruments, and supplies, and an index. **(35)**

GOODMAN, LOUIS S. Training aids. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook**. New York: Mc-Graw-Hill, 1967. pp. 310-337.

A guide to the theory and use of training aids, directed primarily to the training director in business and industry, is presented. Training aids are defined and approached as the media and methods of communication designed to bridge the gap between a training program and learning. The subject is discussed under the following headings: (1) Selection of Media (six criteria for choosing appropriate media and methods for a training program are outlined: who, why, what, where, how, when); (2) Training Through Direct Experience (such media incorporate the concept of learning by doing and activities associated with on-the-job training; discussed are the description, advantages, limitations, and application of direct experience); (3) Media of Indirect Experience (such media afford the learner sensory contact with a subject through a contrived rather than the actual situation; description and illustration of the following media and methods are presented: simulation, demonstration, field trip, exhibit, television, the motion picture, still pciture, auditory aids, graphics, words). **(36)**

HAAS, KENNETH B. and HARRY O. PACKER. **Preparation and use of audio-visual aids.** 3rd edition. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1955. 381 pp.

The information in this indexed book is based on experience with audiovisuals in classrooms and school laboratories; religious, social, and civic groups; and industrial and commercial organizations. It contains ideas on preparing and organizing the use of audiovisuals, evaluating and personalizing them, and creating an instructional laboratory. Three appendices include a discussion on printed teaching aids, a list of sources of audiovisual aids, and an alphabetical (by city) list of television stations. Aids discussed are motion pictures, filmstrips, sound slide films, slides, opaque and overhead projection, maps, charts, graphs, diagrams, flash cards, flannelboards, posters, manuals, pictures and photographs, blackboards and bulletin boards, objects, specimens, models, audiovisual laboratories, field trips, radio, recordings, playback equipment, and television. **(37)**

KEMP, JERROLD E. **Planning and producing audiovisual materials.** San Francisco: Chandler Publishing Co., 1963. 169 pp. [Revised edition, 1968, now available.]

Designed for those who wish to explore and utilize audiovisual ways of expressing ideas, presenting information, and making presentations or instruction more challenging and efficient, the book is a guide to the planning and production of audiovisual materials. The book is divided into three main parts. In Part One the planning and followup steps for producing audiovisual materials are examined, and questions and work problems are included at the end of each section. Part Two presents information about photography, the graphic arts and sound recording, and forms a framework for specific applications which follow. Part Three presents detailed how-to-do-it information for producing the various materials noted. Contents are: Part One, Planning Your Audiovisual Materials–(1) Why Prepare Your Own Audiovisual Material?, (2) Getting Started, (3) The Kind of Materials, (4) Getting Some Help, (5) Expanding from the Statement of Purpose, (6) Mapping the Way, (7) Making the Pictures, (8) Evaluating and Organizing, (9) Completing the Work, (10) Writing an Instruction Guide, (11) Presenting Your Material, and (12) In Summary; Part Two, Fundamental Skills–(1) Photography (your camera setting, picture composition, the film, correct exposure, artificial lighting, close-up and copy work, processing film, making prints), (2) Graphics (planning and preparing art work, illustrating, adding coloring and shading, legibility standards for lettering, making titles, mounting, making paste-ups), (3) Recording Sound (the narrator and the script, music, and sound effects, recording facilities and equipment, preparation for recording, recording procedure, tape editing and splicing, preservation and duplication); Part Three, Producing Your Audiovisual Materials–(1) Picture Series, (2) Slide Series, (3) Filmstrips, (4) Transparencies and Overhead Projection; (5) Motion Pictures, (6) Television Materials; Appendixes–(A) Books, Films, Pamphlets, and Periodicals, (B) Sources for Equipment and Materials, (C) Services, (D) Glossary. An index is included. **(38)**

KINDER, JAMES S. **Audio-visual materials and techniques.** 2nd edition. New York: American Book Company, 1959. 592 pp.

This edition is designed to meet the needs of students, graduate and undergraduate, in teacher-education institutions who have had no experience in classroom teaching; teachers who desire to know more about instructional materials and techniques; and directors of audiovisual programs and administrators who have the task of organizing practical audiovisual programs. Recognizing the importance of audiovisual aids, this volume focuses on the use of particular aids, some of which are study prints and photographic illustrations; slides and filmstrips; opaque, overhead, and tachistoscopic projectors; motion pictures; educational recordings; radio; educational television; graphic materials; and maps and globes. Ten appendixes have the following titles: (1) Film Evaluation Form; (2) Filmstrip Evaluation Form; (3) Record and Tape Evaluation Form; (4) Television Evaluation Report; (5) Teachers' Guide for a Television Program; (6) Motion Picture Projector Check-Out Form; (7) Film Classification and Some Representative Titles; (8) Classified List of Film Sources; (9) Film and Filmstrip Producers and Distributors Mentioned in the Text; and (10) Record and Transcription Producers and Distributors Mentioned in the Text. An index is included. **(39)**

MORLAN, JOHN E. **Preparation of inexpensive teaching materials.** San Francisco: Chandler Publishing Co., 1963. 103 pp.

This manual is intended for teachers who have had little technical training in instructional-materials preparation. Chapters and sections indicate contents: I. Materials for Projection (transparencies, 3¼" x 4" lantern slides, opaque projection materials); II. Mounting and Preserving (mounting pictorial materials, mounting specimens); III. Lettering Instructional Materials (general suggestions; letters, symbols, and tapes; lettering systems; stencils; lettering pens; three-dimensional letters; flat opaque letters; rubber stamps; lettering for special effects); IV. Bulletin Board Utilization (guidelines, layout designs, three-dimensional objects, prints); V. Display and Study Devices (live specimens, diorama stages, electric question board); VI. Chalkboard and Charting Tools and Techniques (templates, stencils, projected negative drawings, hidden chalkboard, chalkboard inks, the grid method, opaque projection drawings); VII. Dramatization and Storytelling Devices (puppets, flannel boards and magnetic chalkboards, scroll theaters–horizontal and vertical roll, slanting and vertical shadow screens); VIII. Maps, Models, and Mock-Ups (plastic-surface, three-dimensional, and flannel maps; science-demonstration devices); IX. Tape Recording for Instruction (tape duplication, disc duplication on tape, simultaneous recording of voice and music, sound effects). There are a one-page list of recommended texts, equipment-operation manuals, films and filmstrips; a list of main addresses of materials manufacturers; and a topical index of illustrations. **(40)**

NATIONAL UNIVERSITY EXTENSION ASSOCIATION. **Educational technology, preparation and use in adult basic education programs.** Washington, D.C.: U.S. Office of Education, Division of Adult Education, June 1967. 123 pp.

Audiovisual materials, when combined with consideration of the ways people learn, can offer new ways of expressing ideas, presenting information, and making instruction challenging and efficient. This publication, directed at teachers of adult basic education and their administrators, illustrates applications of instructional technology to adult literacy programs. Local production techniques are emphasized, and program planners are urged to make full use of professional and paraprofessional services of the community. Sections include a glossary, plans for training sessions (inservice training, workshops, and institutes), available resources, media used in adult basic education (video and audio tape recorders, programmed instruction, computer-assisted instruction, 8mm motion pictures, film loop and overhead projectors, tele-lecture systems, including Victor Electrowriter Remote Blackboard and Blackboard-by-

Wire System), and classified, annotated bibliographies. *(ERIC 2)* **(41)**

SAUL, EZRA V., J. H. CORNEHLSEN, JR., D. V. DEVOE, M. NICCOLL-EHMER, C. J. HANSEN, J. JOFFE, M. W. RABEN, and J. ZURIER. **A review of the literature pertinent to the design and use of effective training aids** (SPECDEVCEN Tech. Report 494-08-1). Port Washington, L. I., N. Y.: Naval Training Defense Development Center, Special Devices Center, 1954. 216 pp.

The purpose of the report was the preparation of a series of literature reviews of relatively specific areas, disciplines, or problem-oriented specialties, with the intent of ascertaining the type and status of knowledge available therein pertinent to the specification of standards of effective training aids. The literature search upon which the report is based utilized bibliographies in the areas of psychology, audiovisual education, advertising, visual art, and communication. In addition, searches of abstracts were made on a wide variety of specific problems and variables pertinent to vision, communications, and learning. Approximately 1200 references were screened during the search and were annotated and included in the report when they appeared typical of knowledge in the particular area and if they appeared to contain data, ideas or content pertinent to the problem of making visual training aids effective. The accepted annotations were then collected into categories based on areas or specialties in whose context they had appeared; short introductory, summary and evaluative units of text were added to form succeeding chapters of the report. Chapters II, III, IV, V and VI contain information pertinent to the design of visual training aids from the area of psychophysiology of vision, visual perception, experimental esthetics, art, visual education, advertising, engineering, drawing, and graphic presentation of quantitative data. The remaining two chapters present literature reviews on the problems of the appropriateness of various subjects for visual display and on appropriate instructor utilization of visual aids. **(42)**

THOMAS, R. MURRY and SHERWIN G. SWARTOUT. **Integrated teaching materials–how to choose, create, and use them.** New York: Longmans, Green and Co., 1960. 545 pp.

The book is designed primarily for use by practicing or prospective public school teachers and meant to be a practical guide. General principles concerning integrated teaching materials, as well as specific examples of how teachers have effectively used them, are presented. Section titles indicate the contents: I. Choosing the Best Methods and Materials; II. Reading or Text Materials; III Photographed Materials; IV. Drawn and Printed Graphic Materials; V. Broadcast and Recorded Materials; VI. Constructed Materials; VII. Real Life Materials; VIII. Displaying and Administering Materials. Appendices include: A, Sources of Textbooks; B, Sources of Films and Recordings; C, Threading Diagrams for Motion Picture Projectors. An index is included. **(43)**

U. S. PUBLIC HEALTH SERVICE, MEDICAL AUDIO-VISUAL FACILITY. **Toward improved learning: a collection of significant reprints for the medical educator.** Atlanta, Ga.: the Facility, 1967. 417 pp.

Presented are "ideas and experiences of scientist-educators here and abroad as they have explored and developed communications media for improved learning. The articles are representative of a cross section of the health sciences–medicine, dentistry, veterinary medicine, nursing, hospital administration, and public health. They are concerned both with proven and experimental applications of communications media and methodology within the health sciences. Scope ranges from encyclopedic coverage of the pros and cons of a medium in terms of its value for medical educators, to specific examples and fine details of the communications media as they are being used by educators and institutions" (from the Foreword by Dr. James Liberman). Section categories and the number of articles reprinted in each are as follows: I. Overview [use of media in teaching] (7 articles); II. Audio Tape (4 articles); III. Computer (3 articles); IV. Films (5 articles emphasizing 8mm format); V. Programmed Instruction (7 articles); VI. Radio (1 article); VII. Television (22 articles); VIII. Miscellaneous (2 articles); IX. Multi-media (9 articles). There is an author index. **(44)**

WITTICH, WALTER A. and CHARLES F. SCHULLER. **Audiovisual materials: their nature and use.** 3rd edition. New York: Harper & Row, 1962. 500 pp.

The book is to be a comprehensive and practical guide to the subject for teachers and prospective teachers. The cross-media approach to learning is emphasized, whereby the teacher is taught to select from the variety of audiovisual and verbal techniques those which, when used in juxtaposition, will produce the highest level of learning opportunity. The text is fully illustrated with photographs, drawings, and graphic and tabular presentations. An index and appendixes listing sources of materials are included. Contents are: 1. The Teacher and Communications; 2. How People Learn; 3. The Chalkboard; 4. Flat Pictures; 5. Graphics; 6. The Study Display; 7. Maps and Globes; 8. Three-Dimensional Teaching Materials; 9. Community Study; 10. Audio Learning; 11. The Tape Recorder; 12. Still Projection; 13. The 16mm Sound Motion Picture Film; 14. Television in Education; 15. Cross-Media Use of Audiovisual Materials; 16. Teaching Machine Programmed Learning. **(45)**

AUDIOVISUAL EQUIPMENT (GENERAL)

Audiovisual projection: motion pictures, slides, filmstrips, large transparencies, opaque materials (Kodak pamphlet no. S-3). Rochester, N.Y.: Eastman Kodak Company, June 1967. 19 pp.

This booklet is a guide to effective audiovisual projection. Seven basic steps are discussed: (1) choose a room with adequate facilities; (2) select a seating plan and screen type; (3) determine the screen size and location; (4) choose loud-speaker location; (5) select the projector location and lens focal length; (6) determine the image brightness required; and (7) select a projector-lens-lamp combination to meet the need. The steps are illustrated by tables and graphs. Tables showing the lumen output of Eastman Kodak Company Projectors are included. **(46)**

Audiovisual source directory. Tarrytown, N.Y.: Motion Picture Enterprises Publications, Inc. 40 pp.

Issued semiannually, this directory provides information about the following: Art and Arts Materials; Courses and Accessories–Motion Picture and Still; Film and Storage Facilities–Audio-Visual; Film Library Equipment and Supplies; Film Raw Stock; Film Treatment and Reconditioning; Furniture–Audio-Visual; Language Laboratories; Lecturns; Maps and Globes; Motion Picture and Slidefilm Libraries–Sales and/or Rental; Motion Pictures and Slidefilms–Free Loan; Musical Instruments; Music and Sound Effects; Order Form for Advertising; Photocopying and Duplicating Machines and Supplies; Projection Lamps; Projection Screens; Projection Tables and Stands; Projectors–Filmstrip and Slide; Projectors–Motion Picture; Projectors–Overhead; Rate Schedule for Advertising; Record and Transcription Players; Recorded Instructional Material; Recording Tape; Scientific Instruments and Lab Equipment; Storage and Filming Facilities–Audio-Visual; Tape Recorders and Playbacks; Television Recievers; Television Systems; Theatrical Costume Accessories; Theatrical Costumes; Theatrical Drapes; Theatrical Equipment–General; Theatrical Lighting Equipment; Theatrical Sound Systems; Transparencies and Preparation Materials; How to Obtain the Hand Guide. **(47)**

BUYER'S GUIDE (entire issue). **Training in business and industry** 4:12, December 1967. 62 pp.

Among items listed in this issue are sources of information on audiovisual equipment: audiotape recorders; filmstrip laboratory services (including a listing of companies and a directory of filmstrip services); motion picture projectors; rear-screen slide projectors; and videotape recorders. **(48)**

EBOCH, SIDNEY C. **Operating audiovisual equipment.** San Francisco: Chandler Publishing Co., 1960. 73 pp.

This manual is intended for anyone planning to use projection or sound reproduction equipment in an instructional situation. It is recommended for use as a handbook while actually working with equipment. General rules for working with equipment are stated in the Preface. Chapters are: (1) Principles of Projection; (2) Motion Picture Projection (including threading paths for six specific manufacturers' models and a projection problem checklist); (3) Still Picture Projection (filmstrip, slide, overhead, and opaque projectors); and (4) Sound Reproduction (record player and tape recorder). A final section includes recommended procedures for using and becoming proficient with equipment; recommended readings on equipment, materials, materials production (filmstrips, slides, transpariences, opaque projection material), magazines, and general texts; a list of manufacturers of equipment (by specific type); and a list of major producers and distributors of materials (by type). There are two diagrams of good seating arrangements and seating capacity for various room sizes. A topical index of illustrations is included. **(49)**

FINN, JAMES D. **The audio-visual equipment manual.** New York: The Dryden Press, 1957. 363 pp.

This manual is intended for all types of educators, trainers, salesman, and adult group leaders. The three main sections are: Projection equipment, playback equipment, and tape recorders (a fourth section on tachistoscopic equipment is also included). Each section has three parts: (1) theory (how and why the equipment operates); (2) operating instructions; and (3) general techniques of good practice with the equipment. Each important point in the theory, operating instructions, and practice sections is illustrated with a drawing or photograph, so that the manual can be used as a self-teaching device. Sections and subsections are: (1) Projectors (General Theory of Projection. 16mm Sound Motion Picture Projectors, Sound Motion Picture Projectors (Magnetic), Filmstrip and 2" x 2" Slide Projectors, Standard Slide Projectors, Overhead Transparency Projectors, Opaque Projectors, Good Projection Practice); (2) Record Players and Radio Receivers (General Theory of Recording and Sound, Transcription and Record Players, Simple PA Systems, Classroom Radio Receivers, Good Practice with Sound Equipment); (3) Tape Recorders (General Theory of Tape Recordings, Tape Recorders, Good Tape Recording Practice); and (4) Tachistoscopes and Miscellaneous Devices (Tachistoscopes and Projective Reading Control Devices, Other Devices). A bibliography is included. **(50)**

KING, WILLIAM H. Equipment in review. **Audiovisual instruction** 12:5, May 1967. pp. 534, 536.

Brief comments on new audiovisual equipment such as the cartridge tape unit, new 8mm projectors, new transparency film, nikkormat projector, background music, and a new slide projector are presented. **(51)**

NATIONAL EDUCATION ASSOCIATION. DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **Selected audiovisual source and reference list.** Washington, D.C.: National Education Association, n.d. Mimeo. 11 pp.

Selections included herein are arranged in the categories of (1) General References; (2) Plant Design, AV Facilities; (3) Sources of AV Materials; (4) Audiovisual Equipment; (5) Administration of AV Programs; and (6) Periodicals on Audiovisuals (seven are listed). **(52)**

OATES, STANTON C. **Audio-visual equipment, self-instruction manual; tape recorders, filmstrip/slide projectors, motion picture projectors.** Dubuque, Iowa: Wm. C. Brown, 1966. 156 pp.

Detailed step-by-step instructions for operating a cross-section of models of filmstrip/slide projectors, tape recorders, and motion-picture projectors are given. Illustrations accompany the text, and the reader is urged to perform indicated operations on actual equipment. There are detailed indexes following instructions on each piece of equipment and a general index at the back. **(53)**

SMITH, E. A., R. E. ROBERTS, and W. E. BRADY. A **portable presentation package for audio-visual instruction** (Technical documentary report no. AMRL-TDR-63-91). Wright-Patterson AFB, Ohio: Behavioral Sciences Laboratory, November 1963.

The Portable Presentation Package is a prototype of a self-contained package of audio and visual equipment designed to facilitate technical training particularly in (1) remote areas, (2) situations where written communications are difficult, and (3) situations requiring on-the-spot preparation of instructional materials. This package contains the components required in preparing and giving visual and audiovisual presentations to small groups. The criteria for the development of the package were that (1) the equipment be easily portable by one man, (2) it be made up of presently available commercial items and (3) the assembly be in such a manner as to allow replacement or substitution of components without interference with other parts. The package is only slightly larger than an attache case, weighs 23 pounds, includes camera with light meter, projector with remote controls and supplementary lenses, projection screen, tape recorder and necessary power cords and mirrors, and additional film and magnetic tapes. Descriptions and drawings are presented in the report. *(ASTD)* **(54)**

ZEITNER, PETER O. A. Maintenance of audiovisual equipment. **Audiovisual instruction** 12:10, December 1967. pp. 1084-1086.

Suggestions are given on organizing, storing, cleaning, and repairing audiovisual equipment. The kinds of cleaning material and tape repairs are also described. ·Tapes, records, filmstrips, and motion picture films are discussed in terms of care required. **(55)**

COMPUTERS IN INSTRUCTION

ADAMS, E. N. Computer-assisted instruction. **Computers and automation** 15:3, March 1966. pp. 12, 13, 41.

Various aspects of computer-assisted instruction (CAI) its initiation, its practical consequences and limitations, and current development of programs–are discussed. Instruction is accomplished through the computer-assisted instruction system at a number of electronic communication stations ordinarily controlled by a single computer. Suitably programmed, a CAI system can, to a useful extent, do the following things for a student at one of its terminal stations: (1) engage in a two-way communication with a student by means of natural language message; (2) guide the student through a program of tasks, helping him where he has difficulty and accelerating his progress where he finds little challenge; (3) observe and record significant details of the student's behavior, including steps undertaken in performing his tasks, time taken for particular steps, and values of varying physiological and enviornmental qualities; (4) simulate the operation of a physical, mathematical, or social process responding to variations in parameters; (5) analyze and summarize performance records and other behavioral records of individual students and groups of students. Discussed in conjunction with these attributes are the following topics: limitations; help from a CAI system; comparison with classroom instruction; individualization of instruction; simulation of complex processes; data analysis; how to reach the potential; special programming languages; pedagogical questions; systems software; and the present and the future. **(56)**

BUNDY, ROBERT F. **Bibliography on computer-assisted instruction.** Rochester, N.Y.: University of Rochester, Clearinghouse on Self-Instructional Materials for Health Care Facilities, n.d. 11 pp.

One hundred fifty-four articles and books are listed. **(57)**

BUSHNELL, DONALD D. The automated classroom. IN HIS The role of the computer in future instructional systems. **AV communication review**, supplement 7, 11:2, March-April 1963. pp. 56-62.

"CLASS" (Computer-Based Laboratory for Automated School Systems) is a facility for the research and development of a complete educational system to provide optimal learning conditions. It permits simultaneous automated instruction of 20 students, each of whom receives an individualized sequence of instructional materials adapted to his particular needs or learns in a group from instruction mediated by the teacher or computer. Each student has a manually operated film viewer containing 2,000 frames of instructional material. He also has a response device linked to the computer which indicates the sequence of slides to be seen by the student, enables the student to respond to questions, and presents results to the student in the form of coded lights. The computer maintains performance records for all students and makes these records available to the teacher, counselor, or administrator. CLASS permits instruction through different media, including television, films and slides, and conventional lecture and textbook methods. It increases teacher efficiency and effectiveness by coordinating learning activities among students who have heterogeneous abilities and educational backgrounds. The computer-based classroom provides individual tutoring, with the teacher monitoring individual progress and difficulties. The teacher can also use a control projection system during lectures or group discussions. The teacher is relieved of most noninstructional functions, freeing him to concentrate on the students and observe learning activities. **(58)**

BUSHNELL, DON D. (ed.). **The automation of school information systems** (Monograph no. 1). Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1964.

The papers contributed in this report of a symposium on educational data processing are divided into 6 groups: (1) electronic data processing and school administration, (2) the automation of scheduling procedures, (3) the retrieval of educational information, (4) simulation and modeling for educational decision making, (5) computer-based instructional systems, and (6) systems design and analysis. *(HumRRO)* **(59)**

BUSHNELL, DON D. (ed.). Computerized educational technology. IN **Automated education** handbook (Frank H. Gille, publisher, and Edith Harwith Goodman, editor). Detroit: Automated Education Center, 1965. 73 pp.

Contents of this section of the handbook are: Computer Based Instructional Systems, by Don D. Bushnell; Future Educational Information Retrieval Systems as Deduced from Recent Research, by Don D. Bushnell and Judith Purl; Functional Specifications for Computer Aided Instruction Systems, by Karl L. Zinn; Survey of Materials Prepared for Instruction or Instruction Research via On Line Computer Systems, by Karl L. Zinn; Computer Assisted Instruction–A Summary of Research Programs, by Don D. Bushnell; Bibliography–Computerized Educational Technology (4 pages); Programmer Instruction and Computer Assisted Instruction–An Overview, by Gloria M. Silvern and Leonard C. Silvern; Computer Basics, by David Rasche; Computer Hardware (description of currently available hardware); List of Data Processing Abbreviations; and Glossary of Automatic Data Processing. **(60)**

BUSHNELL, DONALD D. The role of the computer in future instructional systems. **AV communication review**, supplement 7, 11:2, March-April 1963. pp. 1-70.

Computer technology will relate to education in several ways: (1) educational data processing, including both administrative functions and student personnel functions; (2) simulation and gaming as important teaching techniques; (3) information storage and retrieval affecting most library functions; (4) information transmission and display affecting audiovisual and broadcasting functions; (5) information analysis, breakdown, and resynthesis; and (6) a control for teaching sequences where the computer acts as a teaching machine or the control for a whole instructional system. This special supplement is a monograph including chapters on (1) Computer Fundamentals; (2) The Computer-Based Teaching Machine; (3) Information Retrieval Systems and Education; (4) Computer-Based Simulation: A New Technology for Education; (5) The Automated Classroom; and (6) What Is Next in Computer Applications to Instruction? **(61)**

BUSHNELL, DON D. and DWIGHT W. ALLEN (eds.). **The computer in American education.** New York: John Wiley & Sons, 1967. 300 pp.

Most of the papers in this collection were presented at a 1965 conference on the present and future role of the digital computer in American education. The conference met to: (1) explore applications, problems, and trends in the development of electronic data processing (EDP) in education; (2) establish guidelines and criteria for evaluation and support of research and development programs; and (3) recommend areas of needed research and development. An in-depth report on the state of the art of computer applications in education is given. The papers are divided into four areas: (1) individualized instruction and social goals; (2) computers in instruction and research; (3) teaching and the computer sciences; and (4) information processing for education systems. An extensive bibliography is included. There are also lists of selected conferences and conference presentations on electronic data processing and an index. **(62)**

CAI in medical education. **Educational technology** 6:20 October 30, 1966. pp. 16-18.

The nation's first computerized medical school course has been started by the University of Oklahoma Medical Center, Oklahoma City. CAI uses standard IBM equipment and an IBM symbolic programming language, Coursewriter. This language makes it easier for educators to put course materials into computers. After each lecture of two-hour course in medical backgrounds, students spend one hour studying the appropriate CAI material previously put into the computer. **(63)**

CARTER, L. F. Automated instruction. **American psychologist** 16:11, November 1961. pp. 705-710.

A description is presented of the possibilities of computer-controlled automated instruction. Research being conducted at the System Development Corporation is also described. *(HumRRO)* **(64)**

Center for computerized instruction. **Educational technology** 6:21, October 30, 1966. pp. 19-21.

This article reports various comments on the value of CAI made at the formal opening of the Florida State University's Computer Assisted Instruction Center. Some of the objectives of the CAI research at FSU are research and evaluation through comparison of CAI studies with conventional instructional groups; the implementation of CAI as a university instruction technique; demonstration of instructional capabilities to show the substantive results of studies into CAI potential; and studying teaching strategies, the nature of instructional material, the attitude of students toward the learning process, and the interaction of all three of these. **(65)**

Conference on the Use of Computers in Medical Education. April 3, 4, and 5, 1968. Proceedings. Co-sponsored by the U.S. Department of Health, Education, and Welfare, Public Health Service, Bureau of Health Manpower, and the School of Medicine, University of Oklahoma Medical Center, 1968. 105 pp.

A resolution was passed during the first conference on computer-aided instruction in medical education that such a conference, utilizing the interactive format, be held on an annual basis. Major papers and presentations of conference subjects included in the proceedings are: Medical Technology and Social Change, by J. Herbert Hollomon; Conference Objectives, by Joseph M. White; Statement of the Surgeon General; Excellence–Buy or Beget?, by Frank W. McKee; Evaluation of the Use of Computers in Medical Education, by Stephen Abrahamson; EDUCOM–A Progress Report, by James G. Miller; Computers in Undergraduate Medical Education, by Hilliard Jason; Summary of Panel Discussion: Inquiry, Computers, and Medical Education, by Lee S. Shulman; Computers in Clinical Medical Education, by Donald A. B. Lindberg; Summary of Panel Discussion; Computers in Continuing Medical Education, by George E. Miller; Summary of Panel Discussion; Computers in Medical Libraries, by Martin M. Cummings; Summary of Panel Discussion; Summary of Demonstration of CAI System, by William G. Harless. [Located too late for indexing.]

COULSON, JOHN E. (ed.). **Programmed learning and computer-based instruction.** New York: John Wiley & Sons, 1962. 291 pp.

This reports the proceedings of the Conference on Application of Digital Computers to Automated Instruction. The parts deal with (1) theory and experimentation in programmed learning, (2) computer-based instructional systems, and (3) computer technology in automated teaching. *(HumRRO)* **(66)**

EISELE, JAMES E. Computers in curriculum planning. **Educational technology** 7:22, November 30, 1967. pp. 9-16.

A specific application of computers to curriculum development is reported. A system was devised using a cardsort to make some preliminary decisions with automated equipment. Units were constructed consisting of instructional objectives, content, instructional activities and materials, and measuring devices. A description of how 15 units were constructed, coded, and stored on magnetic tapes and discs for eventual printout is given. When using the system, the teacher selects unit objectives for the total class and then for individual students. The computer matches content, activities, materials, and evaluation devices to objectives chosen and to individual student characteristics. The printout is a resource guide which allows latitude for professional decisions and for teacher-pupil planning. Research on existing units is underway and additional units are being constructed. Three references are cited. **(67)**

GENTILE, J. RONALD. The first generation of computer-assisted instructional systems: an evaluative review. **AV communication review** 15:1, Spring 1967. pp. 25-53.

The purpose of this paper is to examine the research and development trends in computer-assisted instruction. There are three communication problems to be solved: the technical problem, the semantic problem, and the effectiveness problem. The technical problem in CAI is primarily concerned with input-output devices and costs. Arbitrarily limiting the semantic problem to meaning conveyed by the instructional program may result in some confusion. For example, someone is developing a computer system which is capable of learning from a human tutor who instructs it by presenting samples of problems previously solved, general information in the form of a lecture, and suggestions as to how to solve the problem. CAI is usually involved in having the computer-tutor teach human students. Both approaches involve the conveyance of desired meaning via instructional programs. The effectiveness problem in CAI focuses on the purpose of any given program. References are included. **(68)**

GRISELL, JAMES L., PETER G. S. BECKETT, and ROGER GUDOBBA. Teaching diagnostic strategies with a computer. **Journal of medical education** 43:3, March 1967. p. 275.

A computer program designed to teach differential diagnosis in a conventional mode to a beginning psychiatric resident is described. Material is entered into the computer, the resident is provided with a list of questions, declaratives, and diagnoses which the computer will recognize. In response to a question, the computer will type an appropriate response. This program can be adapted for use in any medical discipline. **(69)**

HARLESS, WILLIAM G. The development of a computer-assisted instruction program in a medical center environment. **Journal of medical education** 42:2, February 1967. pp. 139-145.

The problem of the amount of time required of the instructor to develop his course so that he can utilize computer-aided instruction is discussed. The system installed at the University of Oklahoma Medical Center is called "vocal programming." It uses dictating equipment to record the text of a program into an acceptable form for entry into the computer. Dr. Thomas Lynn, a cardiologist at the University of Oklahoma Medical Center, has prepared a course now being used by graduate students in the medical sciences. The program material used by Dr. Lynn and the transcription from the dictating machine by the secretary-programmer are included. **(70)**

HARNACK, ROBERT S. Teacher decision-making and computer-based resource units. **Audiovisual instruction** 12:1, January 1967. pp. 32-35.

A system was devised and reported on in June 1965 which indicated that electronic computers are feasible for teacher preplanning and have great potential for further development. Once the specific functions of teachers were separated from the functions of the electronic data processing equipment, the basic task of defining and organizing the data for the computer became clearer. The set of variables which needed top consideration would obviously be related to the teacher's preplanning functions. It was also clear that a resource unit would be necessary for the equipment to carry out its functions. Once the teacher has chosen the unit topic, has indicated the specific learning outcomes and professional decisions he wishes to develop in a unit, and has provided information about the specific pupils in his classroom, he will get two sets of suggestions (a resource guide) from the data processing equipment. After three years of work, it is known that the electronic computer can perform the following functions in this context: (1) responding to the learning objectives identified by the teacher and/or pupils, it can provide an appropriate content (subject-matter) outline; (2) by taking into consideration the variables of learning objectives and the characteristic composition of the class, it can suggest significant large-group activities, small-group activities, instructional materials for the total group, and measuring devices for the total group; (3) by taking into consideration the variables of learning objectives and the characteristics of each learner, it can suggest suitable instructional material and individual activities for each student, per each objective chosen. **(71)**

HARTMAN, THOMAS F. Computer-assisted instruction. Audiovisual instruction **11:1, January 1966. pp. 22-23.**

A project of the Instructional Systems Development Department at the Thomas J. Watson Research Center in New York is described. The purpose of this project is to develop, implement, and evaluate new techniques to permit the use of digital computers in teaching. The computer-assisted instruction (CAI) system is described. It has two purposes: (1) it is available to behavioral scientists for development of CAI materials and research; and (2) it is used by computer programers to modify and extend a computer programming system using a language called "Coursewriter." The Coursewriter language is explained in technical terms. The capability of individualization with Coursewriter is discussed and response processing is described with examples. Methods for more efficient entry of course material are suggested. **(72)**

KEPPEL, FRANCIS. The computer and the structure of education. **Educational technology** 7:3, February 15, 1967. pp. 1-8.

Computer services to education, when joined to other forces now influencing schools and colleges, might affect the structure of education by calling for the formation of teams of scholars, teachers, and educational technologies to create programs of instruction; by using the special advantages of computer services for helping to achieve the goal of equal opportunity, through its capacity to highlight individual problems and to provide special tutorial programs; by giving strong impetus to planning and the use of systems analysis techniques; and by helping to expand or forge regional units to serve local school systems and separate colleges with computer or other services too costly or complex for them to afford alone. **(73)**

McMURRY, GLENN D. Implications of data processing technology for media specialists. **Audiovisual instruction** 11:6, June-July 1966. pp. 502-506.

Designed to inform the media specialists of the present state of the art of the application of computer technology to instruction, a preconvention symposium featured three presentations and the reactions of a six-man panel. The presentations included: The Educator's Need for Computer Understanding; The Columbia City, Maryland, Computerized Media Project; Data Processing in the Administration of Media Programs. Each of these speeches is summarized, as are some of the questions they prompted. It was suggested that the three basic roles of teachers in future educational systems will be gatherers of information, programmers of the information to be taught, and teachers of information. **(74)**

MELAHN, WESLEY S. Computer time sharing-state of the art. **Educational technology** 6:24, December 30, 1966. pp. 1-4.

In order to get the full value of a computer, the computer should use close to 100 percent of its capacity. This can be achieved most efficiently by time-sharing in which twenty or thirty users share a computer; an example of Wall Street time-sharing is given. The Time-Shared Data Management System (TDMS) at the System Development Corporation is described briefly. **(75)**

NATIONAL EDUCATION ASSOCIATION, DIVISION OF EDUCATIONAL TECHNOLOGY. **The computer and the school: a selected bibliography.** Washington, D.C.: National Education Association, n.d. Mimeo. 2pp.

Nineteen books and articles are included in this bibliography. **(76)**

PASK, GORDON. Men, machines, and the control of learning. **Educational technology** 6:2, November 30, 1966. pp. 1-12.

The study of tutorial conversations and scholastic groups is reported. In work on individual learning, a special computer was used to control the experiment. The main objective is to externalize the student's learning process in the student-machine discourse. The methods considered may either be instrumented by special purpose equipment or in computer-controlled installations. The most effective learning models for use in teaching appear to be those that embody cybernetic ideas of language and control and which have the caliber of artificial intelligence programs. Results which are mentioned indicate that computer controlled group instruction is an efficient and economical teaching method which deserves further investigation. **(77)**

SILVERN, GLORIA M., and LEONARD C. SILVERN. **Computer-assisted instruction: specification of attributes for CAI programs and programmers.** Reprint from proceedings of 21st National Association for Computing Machinery Conference, 1966. 11 pp.

CAI, the learner-centered, man-machine relationship based on two-way communication in which man is a learner and the machine is a computer, is fully defined and examined according to the following framework: the learner's view of CAI; the teacher's view of CAI; the programmer's role; the computer operator; input-output devices; CAI system specifications; and the future of CAI. *(ASTD)* **(78)**

SLACK, CHARLES W. The computer versus the clock. **Educational technology** 7:23, December 15, 1967. pp. 1-5.

If educators had more time, they would be better able to accomplish their objectives. In the phrase "time for learning," there are two meanings of the word time: student learning time and available time. Many difficult factors affect available time. For a teacher to make time available for an individual, he must arrange a mass activity for the rest. The proper use of the computer in the classroom is as a replacement for the clock and its strict temporal schedule. By means of the computer, each student can be given his own temporal regulating system, thereby working at his own rate. There are two ways in which activities may be scheduled: (1) a ratio schedule defines the activities in terms of units of accomplishment independent of time; (2) interval schedules define activity in terms of the time allowed rather that the amount of activity. Dr. L. E. Homme's research has shown that the highest motivation and fastest work rate occur when rewarding activities are scheduled in intervals which come directly after learning activities scheduled in ratios. When rewards are given in ratios or if learning is scheduled in intervals, motivation drops sharply. In our present educational system only homework is scheduled in ratios; everything else is done with interval scheduling. Using the computer, the teacher will be less a slave to the computer than he now is to the clock. The amount of time the teacher will devote to a single student will be determined by the teacher's estimate of time needed and the student's desire to talk to the teacher. Available time of the teacher will be increased by decreasing wasted time. **(79)**

SLACK, CHARLES W. The truth about computerized instruction. **Educational technology** 7:19, October 15, 1967. pp. 8-14.

There is no reason to fear that the computer will make electronic circuits out of us, although it does replace some human functions. Computers cannot teach any more than teachers can; the computer does not replace the function of the writer of learning materials; it can only present those materials after they have been written. The computer places great demands upon two kinds of individuals: lesson writers and teachers. The demand on lesson writers stems from the increased volume of consumption of materials due to the speedup in the learning process. The problem for teachers is what to do with the time that remains when they and the student are freed of the drudgery of performing repetitive tasks. **(80)**

STONE, PHILIP J. Conversing with a computer. **Educational technology** 6:22, November 30, 1966. pp. 13-14.

In conversing with a computer, the student does not simply interact with a segment series of programs, but rather develops an interactive relationship with the machine, with the machine building up an extensive file about the student from the dialogue. The computer can analyze language information, make inquiries when information comes in unanticipated ways, construct maps of incoming information, make checks for inconsistencies, and compose syntactically complex answers. **(81)**

SUPPES, PATRICK. The uses of computers in education. **Scientific American** 215:3, September 1966. pp. 206-220.

Computer-assisted instruction is desirable for two important reasons: it makes individualized instruction possible and it can provide for daily information about how students are performing on each part of a curriculum as it is presented, making it possible to evaluate not only individual pages but individual exercises. Some experiments in computer-assisted instruction conducted at levels ranging from the comparatively simple (drill and practice systems in elementary arithmetic) to the quite complex (tutorial exercises in mathematical logic) are described. Both the computer hardware and the contents of the instruction are described and explained. Problems related to this method of instruction are also discussed—the organization of a curriculum, the criticality of responses, the problem of psychological reinforcement, the problem of effective use of information about the student's past performance, the problems of keeping records of a student's success and failures, and the fundamental problem of cognitive styles of learning. **(82)**

SWETS, JOHN A., and WALLACE FEURZEIG. Computer-aided instruction. **Science** 150:3696, October 29, 1965. pp. 572-576.

Described is the "Socratic System," a programmed-computer method of teaching concepts and problem-solving techniques through emphasis on conversational interaction. *(USCSC 2, edited)* **(83)**

TELEVISION INSTRUCTION

Annotated medical television bibliography. Rochester, N.Y.: University of Rochester, Clearinghouse on Self-Instructional Materials for Health Care Facilities, February 1968. Mimeo. 9 pp.

This is a briefly annotated bibliography of articles on the use of television in medical teaching settings. **(84)**

BELL, RICHARD H. The challenge of ITV: maximizing technology in education. **Educational instructional broadcasting** 1:1, February-March 1968. pp. 17-19.

The fundamental challenge presented to the educator by television and other forms of modern technology is to create a new and improved system of instruction based on the realities of modern knowledge, modern society, and modern needs. Shortcomings of combined ETV-ITV are pointed out and the necessary rethinking of the process for maximum utility is outlined. The changing role of the teacher as a result of ITV is discussed, and the possibility of new categories of teachers, such as the "organizer-presenter" or "learner-leader" are investigated. The required qualities of the expert are discussed along with related aspects of ITV–new formats, provisions for individual differences, appropriate environment, independent study, and standards for materials to be used in technical systems. **(85)**

BOWEN, CHARLES G., and RAYMOND WYMAN. New vistas for CCTV. **Audiovisual instruction** 11:3, March 1966. pp. 188-189.

Available closed-circuit television (CCTV) equipment and techniques can provide a quality and variety of visual transmissions that can open new vistas. The high fidelity video of CCTV reproduces complex visual materials in detail. Vidicon cameras can be used from a distance to permit students to observe classroom activities from outside the classroom. Cameras using ultrasonic converters, fiber optics, and character generators promise new educational applications. Educational experiences too dangerous for classroom presentation can be transmitted from special laboratories. Presentations can be stored on magnetic tape and reproduced whenever and wherever desired. Memory banks in a central location can store vast quantities of graphic materials. Interviews with distant experts and connections to distant libraries, laboratories, and computers enlarge classroom possibilities. **(86)**

CARPENTER, C. R., and L. P. GREENHILL. **An investigation of closed-circuit television for teaching university courses** (Project number 2, Instructional Television Research). Pennsylvania State University, July 1955.

This is a report of a major study of the application of instructional television. Chapters are on effectiveness, appropriateness, acceptability and feasibility. *(HumRRO)* **(87)**

COSTELLO, LAWRENCE F., and GEORGE N. GORDAN. **Teach with television.** New York: Hastings House, 1961. 192 pp.

Instructional television is the attempt to teach in a formal manner over television on any level of schooling. This book synthesizes the collective experience of many who are familiar with the problems of television teaching; it applies common sense with practical classroom procedures to instructional television. Closed- and open-circuit television in all levels of education are handled in this book. Chapters include: Instructional Television: What It Is–How It Works; The Limits of Television; The Television Studio; The Televised Lesson; Organization for the Installation; Teaching the Lesson; Using the Lesson; Administration and Television; Financing Instructional Television; and Evaluating the Results. A bibliography, glossary, and index are appended. **(88)**

DIAMOND, ROBERT M. **A guide to instructional television**. New York: McGraw-Hill, 1964. 304 pp.

This book is designed to fill the need for a single reference for administrators, teachers, students, and laymen interested in exploring the possible uses of television in education. Emphasis is on elementary and secondary education. Part I is concerned with the use of television as a magnification device. Large numbers of students using television are covered in Part II. Examples of administrative uses of television are presented in Part III. The last part attempts to place educational television in its proper perspective. The appendixes serve as partial equipment and production manuals. Short chapters are included on the problems of introducing television into a school, purchasing equipment, selecting teachers, and preparing the teacher guide. An annotated bibliography and index are appended. Parts and chapters are: I. Single-Room Television–(1) Television and the Teaching of Typing, by E. C. Kelly; (2) Television in the Anatomy Laboratory, by R. E. Richter; (3) Television in the Art Class, by R. R. Coleman; (4) Television in Large-Group Science Instruction, by R. L. Hassur. II. Studio Television–(1) The Anaheim Approach to Closed-Circuit Television, by R. E. Shanks; (6) Statewide Closed-Circuit Television: The South Carolina Program, by G. E. Bair; (7) "Shoestring" Television, by T. H. Bell; (8) The Schenectady Approach: Using the Educational Station, by R. Murray; (9) The Des Moines Approach: The District-Owned Station, by J. A. Montgomery; (10) Guidance and Television, by C. L. Beachley; (11) Television in the Secondary School, by M. Gable. III. Administrative Uses of Television–(12) Standardized Testing by Television, by J. C. Woodward; (13) Television, Kinescopes, and In-Service Education, by W. Hansen; (14) Television and Classroom Observation, by J. M. Hofstrand. IV. The Perspectives for Instructional Television–(15) Evaluation of Instructional Television, by R. C. Brown, Jr.; (16) The Administrator, Educational Problems, and Instructional Television, by C. G. Erickson; (17) Television: Part of the Answer, by J. E. Kemp; and (18) Instructional Television: the Potential and Its Problems, by R. M. Diamond. **(89)**

Educational television. **Audiovisual instruction** 12:9, November 1967 (entire issue). 109 pp.

The following essays are included in this special issue devoted to instructional television: Meet a New Animal, by K. L. Gustafson; New and Promising Uses of ITV, by K. B. Culuer; Inquiry in Instructional Television: A Pilot Project, by Elinor Richardson; Learning Models for Television: Improving the Program Content, by G. E. Broyles; Implications of Satellites for Education, by M. V. Biggy; Philadelphia Division of Instructional Materials Closed-Circuit TV Project, by M. A. Gable; Pasadena Enters the 2500 MHz Television Field, by A. W. Fink; The Stephens College Television-Radio-Film Department–Challenging, Inoperative, Growing, by Neal Balanoff; Toward a Classification of Television Feedback, by Herbert Zettl; What Went Wrong?, by Morris Weber; Avoiding Common Pitfalls in the Planning of a Practical Instructional Television System, by H. R. Lapham; Nine Clichés about Instructional Television and Big City Schools, by Charles Benton; Low-Cost Video Tape Recording, AV Tool or Medium?, by Rudy Bretz; The Video Tape Recorder, by Charles Vleck; Director of Video Tape Recorders, by Robert Angus; Efficient Cataloging of Audiovisual Innovations, by J. H. Gaunt; Equipment Guidelines for the ETV Graphic Production Area, by R. M. Davis; Educational Radio: "The Hidden Medium" Emerges, by Jerold Sandler; Check List of Video-Tape Recorders Reprinted from **Sales Meetings**; Maintenance of Audiovisual Equipment: About Those Dirty Headsets!, by P. O. Zeitner; and Some Thoughts about Educational Television, by H. R. Cassiver. **(90)**

FRANTZ, JOHN B. The educational advantages of instructional television. **The journal of higher education**, April 1965. pp. 209-213.

The educational advantages of instructional television are discussed in this article. The author states that instructional television is of proven effectiveness as an instructional medium, and mention is made of certain experiments which prove its effectiveness. *(ASTD)*

(91)

GRIFFITH, BARTON L., and DONALD W. MacLENNAN. **Improvement of teaching by television** (Proceedings of the National Conference of the National Association of Educational Broadcasters at the University of Missouri, March 2-4, 1964). Columbia, Missouri: University of Missouri Press, 1964. 238 pp.

The papers of the proceedings are presented in ten sections, and respectively present: (1) insights into instructional television (ITV); (2) a summary of the past research on ITV and suggestions for future research; (3) comments from college, elementary, and secondary teachers who have taught through television and from elementary and secondary teachers who have used ITV courses in their classrooms; (4) description of the purposes and facilities of the new multi-million-dollar Learning Center at Stephens College, Columbia; (5) studies of ITV visual aids and the role and duties of the graphic artist, including a survey of graphic art departments in ITV installations; (6) a description of a proposed system for the distribution of instructional materials to school districts throughout metropolitan St. Louis; (7) comments of college and public school administrators on their experience with ITV; (8) a discussion of the problem of inter-institutional exchange of ITV materials; (9) a discussion of television teaching in the physical sciences; and (10) a discussion of the role of the ITV producer director in colleges and secondary schools. **(92)**

GROPPER, GEORGE L. Does "programmed" television need active responding? **AV communication review** 15:1, Spring 1967. pp. 5-22.

A study to evaluate a number of procedures for improving the conventional television lesson is reported. Three versions of a lesson on levers were compared experimentally. One was an existing lesson that was specifically designed to facilitate retention, the second was a revised version of the original lesson that was specifically designed to facilitate retention, and the third was also a revised version of the original, this time specifically designed to facilitate transfer. Subjects participating in the study were seventh graders drawn from five public and parochial schools. (Several figures and tables give statistical data.) It may be concluded that the success of programmed instruction depends both on effective design of the stimulus and on appropriate response practice. Generally, it was concluded that concentration on only the stimulus, while neglecting the response, pays attention to only one of two key elements; it can produce improvements over most typical lessons but falls short of standards usually set for programmed instruction. References are included. **(93)**

HYMAN, JOHN L., JR. Viewer location and learning in instructional television. **AV communication review** 11:3, May-June 1963. pp. 27-31.

The literature of the relationship between physical arrangement of the viewing area and learning from instructional television is reviewed. Then the report of a study made in May 1962 in the Denver, Colorado, public schools is given. Elementary school Spanish was the content; subjects were fourth graders. The procedure for the study is reported. The results support the suggestions in the literature that the effect on learning of viewer location relative to the television screen depends on the nature of the learning tasks. Three references are given. **(94)**

INSTITUTE FOR COMMUNICATION RESEARCH. **Educational television, the next ten years.** Stanford University, 1962. 375 pp.

This is the report of a study commissioned by the Educational Media Branch of the United States Office of Education. It takes a broad look at completed research and the future of educational television. The chapter by Schramm summarizes hundreds of studies on television and lists 99 references to practically everything published on television through 1960. *(ERIC 1)* **(95)**

KOENIG, ALLEN E. and RUANE B. HILL (eds.). **The farther vision: educational television theory today.** Madison, Wis.: University of Wisconsin Press, 1967. 371 pp.

The purpose of the book is to survey the significant elements that constitute educational television (ETV) and to put them into perspective. The book is composed of twenty-one articles by specialists familiar with the various facets of ETV. There are six broad divisions of material: (1) the historical and philosophical foundations of ETV, (2) the problems and operations of "on the air," or open-circuit TV stations telecasting to both local and national audiences, (3) the development and use of ITB (instructional television) and closed-circuit television, (4) specific problems such as financing or research, (5) the training considered desirable for either the ETV specialist or the classroom teacher, and (6) the potential of space communication in ETV. The book closes with a summary of the achievements and a look at the future of educational television. Appendices include: (1) The Findings of the Carnegie Commission on Educational Television, and (2) The Public Broadcasting Act of 1967. The book is indexed. **(96)**

LEE, ELIZABETH and CHARLES H. SCHMITZ. **Television do's and don't's.** New York: Broadcasting and Film Commission, 1955. 23 pp.

Tips are given in the following areas for making television appearances: preparation; still pictures, blackboard or drawing pad; exhibits, objects, specimens; demonstration; models; recordings; interviews; attitude; talk; microphone presence; camera presence; make-up; and personal appearance. **(97)**

MACOMBER, F. GLENN and LAURENCE SIEGEL. **Final report of the experimental study in instructional procedures.** Oxford, Ohio: Miami University, January 1960. 96 pp.

Developed under a grant from the Fund for the Advancement of Education, this is a report of a study begun in November 1955 to determine the relative effectiveness of large and small group instruction at the college level. Related purposes were (1) to improve larger group teaching procedures so that the claimed advantages of small group instruction could be relayed in large group teaching to the greatest extent possible; (2) to study and improve facilities, including television, utilized in large group instruction; and (3) to develop and encourage the use of a more adequate instructional aids center for the improvement of college teaching. Chapter headings indicate contents: I. Summary of Findings and Conclusions; II.Purpose of the Study; III. Experimental Design; IV. Evaluation of Student

Achievement; V. Evaluation of Student Attitudes; VI. Faculty Reaction to Large Group Instruction; VII. The Role of the Audio-Visual Service; and VIII. Problems of TV Teaching. Nine appendices are included. Their titles follow: The Critical Thinking and Synthesis Examinations; Comparative Performance on Tests of Subject-Matter Achievement by Students in Experimental and in Control Sections; Comparative Performance on Tests of Problem-Solving and Synthesis by Students in Experimental and in Control Sections; Comparative Scores on Sterotype and Misconception Tests; Acquisition in Subject Matter Knowledge as a Dual Function of Section Assignment and Level of Ability; Performance on Tests and Problem Solving and Synthesis as a Dual Function of Section Assignment and Level of Ability; Results of the Long-Term Retention Study; Student Attitudes Toward the Course Content; Student Attitudes Toward the Instructor; A Statement of the Purposes and Functions of the Miami University Audio-Visual Service; Observations and Recommendaions Regarding the Audio-Visual Program at Miami University, by Robert E. DeKieffer and Donald P. Ely. **(98)**

MURPHY, JUDITH and RONALD GROSS. **Learning by television.** New York: The Fund for the Advancement of Education, 1966. 95 pp.

The role of television in instruction is examined—the diversity of effort in this field, how the medium works, what the leading practitioners and critics think and feel about its achievements and failures, and what the future may hold. Findings indicate two prime causes for television's limited acceptance: the quality of the transmitted instruction and the way it is used in the classroom. Widespread disenchantment has resulted from the mediocre level of much instruction exposed to professional and public scrutiny for the first time. The primary goal of ITV in the future must be to raise quality and improve classroom utilization. Differences in usage of the terms ETV and ITV are explained in a footnote. Chapters are: The Unfinished Experiment; The ITV Enterprise; The Impact of Televised Instruction; The Question of Quality; ITV at the Crossroads; and ITV and the Future of American Education. A listing of 12 promising educational activities involving television that need financial support concludes the publication. **(99)**

NATIONAL EDUCATION ASSOCIATION. DEPARTMENT OF CLASSROOM TEACHERS and DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **And TV, too!** Washington, D.C.: National Education Association, 1961. 63 pp.

A work conference sponsored by NEA's Department of Classroom Teachers and the Department of Audio-Visual Instruction produced this information on various phases of educational television. With it, the teacher can better understand his role in planning television, presentation, confidently use television for instruction, and explain to others the importance of the classroom teacher in educational television. Chapter titles are: Television Means Many Things; Television Does Many Things; Television—A Teaching Partnership; Television—Effective Use; Television—Evaluation; Television Looks to the Future. The appendix includes tips for better reception, a list of sources (organizations concerned with television publications, newsletters, and periodicals), and names and addresses of conference participants. **(100)**

ORR, DAVID B. The evaluation of televised instruction. **AV communication review** 14:3, Fall 1966. pp. 363-370.

Proposed is an approach to the problem of evaluating the attainment of the (particularly noncognitive) objectives of televised instruction, based on preliminary evaluation studies of the science telecasts programmed to several hundred public schools in the greater Washington, D. C. area by the Greater Washington Educational Television Association and to over 100 public schools by ETV Station WQED in the greater Pittsburgh area during the 1958-1959 school year. The method of evaluation used, emphasizing the behavior of the learner as it relates to the attainment of specified educational objectives, was the method of explicit rationales, which consists of the explicit statement of all definitions and inferences as related to the actual pupil behaviors in question. The application of the method to the evaluation studies mentioned above is described and a suggested integrated program for the evaluation of educational telecasts is outlined: (1) the preparation by curriculum committees of specific educational objectives to be attained; (2) the collection of concurrent and ongoing information from direct observation and from the students, teachers, parents, and supervisors about pupil behaviors relevant to each of the specific objectives of the televised instruction; (3) the preparation of explicit rationales for the measurement of each objective according to the general procedures outlined above; (4) the development, tryout, and revision of standard, quantitative, and relatively objective measurement instruments for the assessment of the behaviors relevant to the specific objective; (5) the application of such instruments to the measurement of the attainment of various program objectives. References are included. **(101)**

PROCTOR, JOHN H. and WILLIAM M. THORNTON. Automated instruction. IN THEIR **Training: a handbook for line managers.** New York: American Management Association. 1961. pp. 96-100.

Automated instruction includes such devices as teaching machines and educational television. Educational television allows a great variety in material and can reach more people than other methods. No elaborate training setup is needed and films can be easily used. With this method, it is possible to get better people to teach; each student has a front seat; and training sessions can be repeartd on kinescope. With videotape, playback is immeidate and tapes can be duplicated, erased, and edited. Closed-circuit television is not necessary. The costs may be shared by several companies, although no overt advertising is permitted. The limitations of this method are that television can never substiture for the teacher-student relationship, and specialized company needs are hard to handle. Representatives of local training-director associations are preoccupied with their own work and find it difficult to push these projects and contribute their experience. Scheduling is also a problem. **(102)**

Projection display. **Training in business and industry** 5:1, January 1968. p. 36.

This article reports use of television by the Yale University School of Medicine. A closed-circuit system is used for presenting to Grand Rapids a traditional Saturday morning meeting of staff, local physicians, and medical students in which doctors discuss unusual cases. The Medical School is also building a library of instructional tapes for its students. **(103)**

REID, J. CHRISTOPHER and DONALD W. MacLENNON. **Research in instructional television and film; summaries of studies.** Washington: U. S. Govt. Print. Off., 1967. 216 pp.

This report of almost 350 research studies concerned with instructional television and film includes abstracts of the experimental literature since 1950. The abstracts fall into certain categories under which trends are discussed: comparison of televised with direct or face-to-face instruction; comparison of filmed or kinescoped courses with direct instruction; studies of other uses of television for instruction; studies of other applications of films for instruction; studies of attitudes related to instructional films; studies of effects of production variables in instructional television programs; and studies of effects of production variables in films. Author and subject indexes are included. **(104)**

SCHRAMM, WILBUR. Learning from instructional television. **Review of educational research** 32:2, April 1962. pp. 156-167.

Research on learning by instructional television is reported and discussed. A listing of the tables used to illustrate the findings indicates the contents of the research: (1) summary of 393 research studies comparing the relative effectiveness of conventional classroom teaching and instructional television; (2) comparison of relative effectiveness of conventional classroom teaching and instructional television by school level; (3) comparison of effectiveness of conventional classroom teaching and home instructional television for college students by subject area; (4) comparison of student evaluations of relative effectiveness of conventional classroom teaching and instructional television by school level; (5) comparison of college student preferences during first and second semesters of TV or non-TV sections by subject-matter area; and (6) comparison of teacher and principal evaluation of relative effectiveness of conventional classroom teaching and instructional television. The findings suggest (a) that under some conditions and used in some ways, instructional television can be highly effective, and (b) that the pertinent question is no longer whether a teacher can teach effectively on television, but rather how, when, for what subjects, and with what articulation into classroom activities instructional television can be most effectively used. **(105)**

SPEAR, JAMES. **Creating visuals for TV: a guide for educators.** Washington, D.C.: National Education Association, Division of Audiovisual Instructional Service, 1965. 48 pp.

The guide is meant both for experienced and inexperienced TV teachers or audiovisual directors. Visuals described were designed primarily for instructional television. They can also be used by community organizations or educational institutions planning public information programs or programs of an enrichment nature, by school districts planning inservice programs for the personnel, and in general adult education programs. There are four main sections: Projected Resources; Nonprojected Resources; Studio Props; and Special Effects. **(106)**

The use of student response to improve televised instruction (film). Pittsburgh: American Institutes for Research. 16mm, sound, black-and-white, 30 minutes.

Methods for improving instructional television by using student response are presented: pretesting the effectiveness of lessons with trial classes; requiring active student responding during lessons to increase participation; application of teaching machine techniques to stimulate appropriate student participation; and stimulation of student extracurricular activities following the telecasts. The research method used and results from experimental comparisons between alternative versions of televised science lessons are discussed and illustrated. **(107)**

VIDEOTAPE RECORDINGS

BENSCHOTER, REBA ANN, CHARLES GARETZ, and PRINGLE SMITH. The use of closed-circuit TV and videotape in the training of social group workers. **Social work education reporter** 15:1, March 1967. pp. 18-19, 30.

The development of a two-way closed circuit TV system between two psychiatric hospitals in Nebraska has improved the training of social group work students by facilitating their placement in a hospital best suited to their needs and by making possible videotape recordings of students working with patients. Both students and instructors are enthusiastic about being able to watch and listen to tapes of student interviews. Among the problems encountered are: unwillingness on the part of many patients to participate and increased costs in both time and money for the training program. **(108)**

BOSLEY, HOWARD E., and CHARLES K. FRANZEN. The uses of television in teacher education. **Audiovisual instruction** 12:10, December 1967 pp. 1050-1053.

Twenty articles written by authorities on the use of television in teacher education, a new multi-state teacher education project (M-Step), are reviewed briefly. These articles deal with (1) videotapes as substitutes for classroom and child group observations; as a self-appraisal process for student teachers; and as a means of providing instruction in the skills and techniques of teaching; (2) simulation of practical situations; (3) rendering resource persons of national and international significance available for present and future generations of learners; (4) telecourses and teleconferences for preservice and inservice development of teachers; and (5) other applications such as recording pupil reactions to teacher behavior for further analysis and study. **(109)**

BRETZ, RUDY. Low-cost videotape recordings: av tool or medium? **Audiovisual instruction** 12:9, November 1967. pp. 948-951.

This article points out some of the limitations of the simplified production system packages now being advertised by many videotape equipment manufacturers. The simplest equipment (configuration tape machine, camera, and monitor) is suitable only for producing video tapes for use as instructional aids. The simplest practical system for producing effective materials for the instructional television medium is a self-directed system, but many such equipment configurations are too complex to be operated by an instructor while he is making a presentation. **(110)**

Checklist of video tape recorders. **Audiovisual instruction** 12:9, November 1967. pp. 968-969.

A chart lists the various models of tape recorders, their size, weight, cost, compatibility with other units, the number of audiotracks, number of heads, the width and speed of the tape, whether they have remote control and still frame or slow motion, whether they are color adaptable, and whether audio can be altered. **(111)**

DETTRE, JOHN R. Videotaping simulated teaching: a tool in general methods. **Audiovisual instruction** 12:7, September 1967. pp. 693-695.

Student teachers were videotaped in simulated teaching situations so that they could see themselves performing in the role of the teacher and the kind of image they presented. If the students could see themselves before they began teaching, there might be incentive for change. The students were taped twice. The second taping showed them more self-aware and less nervous than the first. Each student had to make a lesson plan for a full day of courses and had to present this to other student teachers acting as high school students. The tapes were reviewed, and the student was given another opportunity to see his teaching qualities on a second taping. Rating sheets were provided for students at the reviews. **(112)**

HERSHFIELD, WALTON N. Video-sonic instructional techniques for training personnel. **Personnel journal** 46:2, February 1967. pp. 109-111.

This article discusses advantages of using videotape in orientation and training programs in institutions and industry and points out its superiority over films. *(USCSC 1, edited)* **(113)**

How to select a vtr system. **Training in business and industry** 5:1, January 1968. pp. 25-28.

Recognizing the growing importance of the videotape recorder to industrial training directors, Ken F. Winslow, Coordinator of the Television Communications Office at the University of California, Berkley, discusses the following questions: (1) To what do you attribute the developing interest in the videotape recorder as a training tool? (2) With all the machines on the market these days, how does a person select the proper one for his purpose? (3) Must a television camera match a videotape machine? (4) Any necessity to match a particular brand of videotape with a particular machine? (5) Is there any way to judge the quality of the videotape machine on the market? (6) Any other features one should look for? (7) The term "scanning path" comes up in discussion about videotape machines; what does this mean? (8) With different scanning paths and tape sizes and reel speeds and writing speeds, how difficult is it to exchange tapes, that is, play a tape on one machine that was recorded on another? (9) Are there any accessories one should buy along with the basic videotape machines? and (10) What future developments do you see for videotape machines both in features and cost? **(114)**

KAUTZ, WILLIAM D., and MAX WALD. Closed-circuit television as an inservice aid. **Audiovisual instruction** 12:10, December 1967. pp. 1048-1049.

Eight common disturbances in high school are suggested for use as role-playing situations. These disturbances were videotaped and shown to a panel of teachers as a form of inservice training. Two questions were asked after each problem: (1) What would the teacher have done in the situation? and (2) What could he have done to prevent it from occurring? After the panel members had reacted to the situation, the audience was given an opportunity to discuss the panel's reactions. **(115)**

MICHAEL, SISTER M. Marywood's mobile t.v. unit. **Audiovisual instruction** 11:1, January 1966. pp. 27-30.

The utilization of mobile television production for the creative solution of instructional problems at Marywood College in Pensylvania is described. The T.V. unit permits group observation of actual teaching methods and problems. Videotape rather than live television is used. This permits (1) prescreening to determine the suitability of the observed situation, (2) facility in scheduling and structuring the college observation class, (3) certainty that the desired illustrations will be present on the tape when needed, (4) opportunity for clarification by repetition of segments of tape, and (5) opportunity for observation of a wider variety of situations. The scheduling procedures of the mobile unit are described. Practical considerations are discussed and extramural television activity is mentioned. **(116)**

O'SULLIVAN, P. KEVIN. VTR program checklist. **Training in business and industry** 5:1, January 1968. pp. 29-30.

Over the years since 1956, the "studio teachers" of the Washington County (Maryland) School System have developed a checklist of presentation standards that will be of interest to training personnel charged with responsibility for preparing instructional materials for television. After preparing each presentation, the television teacher asks questions about the content, the teaching procedure, audiovisual teaching aids, movement in the lesson, special camera effects used, manner of presentation, effectiveness of setting, use of ideas, and general impressions of the presentation. **(117)**

OSWALD, I. M. Through the looking glass: adventure in television. **Journal of education for social work** 1:1, 1965. pp. 47-55.

The School of Social Welfare at Berkely has had two years of experience in the use of television for teaching purposes. The television production procedures include the use of a mobile videotape recorder. Lectures, panel discussions, clinical demonstrations, and other types of programs have been produced. The relationships between the television engineers and the social workers resulted in much mutual learning. Many clients became willing partners in the television project. Sources of differences in participation-willingness on the part of clients and practitioners are considered. There were specific values for the use of audiovisual, in contrast to written, materials. The project is to continue. Several of the videotapes were transferred to film and are presently available for use by other schools of social work. **(118)**

RAMEY, JAMES W. Teaching medical students by videotape simulation. **Journal of medical education** 43:1, January 1968. pp. 55-59.

The combination of closed-circuit television and videotape recording makes possible a solution to the disadvantages of the case study technique (exclusion of experiential background of participants, lack of personal involvement in the roles of the situation, and impossibility of perceiving the dynamics of the developing situation) and disadvantages of role-playing (inadequate preparation of participants, embarrassment, hesitation to criticize and probe actions of others, inability of players to step out of the role and react to what is happening while it's happening, and impossibility of repeating a situation exactly). The procedure for using a combination of case study, videotaped role-playing, and discussion is presented with comments by participants on their reactions to the process. An application of the technique involving a case concerning a doctor and the family of a dying patient is reported. A complete teaching demonstration of the use of the technique was developed by recording the above case and classroom discussion on videotape. This technique has been used in medicine, library science, and business, and is appropriate to almost any crisis situation, many decision-making situations, and some more analytical situations such as occur in engineering or budgeting. **(119)**

SCHAEFER, MARTIN and MARIAN H. STROMQUIST. Microteaching at Eastern Illinois University. **Audiovisual instruction** 12:10, December 1967. pp. 1064-1065.

Though each instructor tends to vary the format somewhat, the procedure in microteaching is generally for each student to present a short segment of material before the camera to the students in his methods class. After viewing the performance, the student and the methods instructor discuss its strengths and weaknesses; the student then re-plans the sequence and repeats it, or parts of it, before the camera which records it on videotape for another viewing. Basically, the disadvantages of using TV are due to the fact that there is too little equipment. The advantages are: (1) the teaching sequence is simplified over a similar situation in a real classroom, thereby allowing students to practice sepcific methods; (2) the supervising instructor can pinpoint supervision in a more precise manner; (3) each student can work on his own problems; (4) students are less fearful of the first few days of student teaching; and (5) the instant feedback allows the student to immediately evaluate his performance. **(120)**

SMITH, LEONARD. Checklist for producing a videotape program. **Training in business and industry** 5:1, January 1968. p. 23.

Main headings of this checklist follow: objective: purpose of production; subject matter; content; method of presentation; preparation of script; physical facilities; equipment; preparation of storyboard; visual aids; timing; staff assignments; rehearsal; modification of storyboard and assignment sheets; taping; editing and review. **(121)**

STROLLER, FREDERICK H. The use of focused feedback via videotape in small groups. **Explorations in human relations training and research** (no. one, 1966). Washington, D.C.: National Training Laboratories, 1966. 15 pp.

Videotape is a new tool for enhancing the presentation of feedback in small groups. Advantages and disadvantages of the method, technical arrangements, theoretical considerations for focused feedback, and details of the technique of feedback are presented. Because it is such a new technique, applications have been relatively limited. It is felt to have considerable promise if used imaginatively. Within the field of vocational rehabilitation it can be used for improvement of performance, training for the use of the self, and attitude changes. Fifteen references are cited. **(122)**

Tape sources. **Training in business and industry** 5:1, January 1968. p. 35.

Organizations are being established to act as clearinghouses for information about currently available videotape programs for rent or purchase. A list of these organizations is included. Several universities are establishing videotape libraries and will be making their "professors-on-tape" available to outside purchasers. **(123)**

The versatile videotape recorder. **Educational technology** 7:1, January 1967. pp. 7-14.

Because of the cost breakthrough, videotape recording is being used for education. Several examples of its use in schools are listed. The Los Alamos school district has videotapes at ten schools. The school system purchased CCTV equipment with a grant from the Atomic Energy Commission in 1965. Three basic areas were covered during CCTV usage: (1) videotaping of educational broadcasts directly off the air; (2) production of live videotapes; and (3) inservice training for the professional staff. The program was expanded by placing recording machines along with monitors in individual schools; in this way, programming can be used when it is needed and is not confined to a rigid time schedule. **(124)**

VLECK, CHARLES. The video tape recorder? **Audiovisual instruction** 12:9, November 1967. p. 952.

The following recommendations are offered to prospective purchasers of the videotape recorder. Determine the features that the videotape recorder will need based upon objectives of your program and select the machine(s) which can fulfill your objectives, test and evaluate the videotape recorders, consider service, and confer with users. If the videotape recorder is to be serviced by your technician, send him to a factory school. Consider leasing tape recorders. Each VTR model must demonstrate playback compatibility between like model machines; if color is necessary in the low and medium priced range, better wait awhile. No VTR evaluated produced a sync pulse adequate to meet FCC requirements. **(125)**

TELEVISION FACILITIES

ALFORD, W. WAYNE. The Educational Television Facilities Act of 1962. **AV communication review** 15:1, Spring 1967. pp. 76-91.

The article presents a review of the history of American ETV. President Kennedy signed the Educational Television Facilities Act into effect in May 1962, Congress having approved a modified version of Senator Warren Magnuson's original bill, which had begun to take shape as early as 1956. **(126)**

BIGGY, M. VIRGINIA. Implications of satellites for education. **Audiovisual instruction** 12:9, November 1967. pp. 921-922.

The Ford Foundation proposal for a noncommercial satellite system with channels reserved for instruction is described. Uses proposed for the satellite's channels include: (1) the teaching of foreign language; (2) social studies instruction; (3) training of people who are to work in other countries; (4) teacher education; (5) inservice education for teachers; (6) art and music appreciation; (7) the teaching of reading in countries where no such instruction is available; and (8) basic machine maintenance. This technique would bring to teachers in this and other countries a view of new instructional techniques in operation. **(127)**

CAMPION, LEE E. and CLARICE Y. KELLEY. **Studies in the growth of instructional technology, II. a directory of closed-circuit television installations in American education with a pattern of growth** (Occasional paper no. 10, technological development project). Washington, D.C.: National Education Association, Department of Audiovisual Instruction, May 1963. 141 pp.

This study was undertaken to (1) locate as many as possible of the closed-circuit television installations in educational institutions in the United States, (2) compile a directory of these installations, (3) describe the equipment in use, (4) locate patterns of use of closed-circuit systems, and (5) describe the development process of this new form of educational instrumentation. The contents are: I. Overview, II. Methodology; III. Facilities and Equipment; IV. Utilization; V. Findings of the Study: A recapitulation; VI. A Perspective of the Future of CCTV: Two Views; VIII. Directory of Closed-Circuit Television Installations (Educational Institutions, Medical and Dental Colleges, Military, Community Antenna Systems). Tables and graphs and a bibliography are included. **(128)**

CARNEGIE COMMISSION ON EDUCATIONAL TELEVISION. **Public television: a program for action.** New York: Bantam Books, 1967. 112 pp.

This report of the Carnegie Commission defines public television (PTV) as general commercial television for specialized home audience groups. Educational television is instructional television plus public television. The report endorses a network of 380 local ETV stations that would be locally owned and nationally integrated; stresses the need to serve small audiences that would not be reached by the mass rule of commercial TV; puts a premium on diversity, pluralism, and multiple audiences, as well as local initiative and responsibility, option, funding, and independence; advocates creation of a federally chartered, nonprofit, nongovernmental organization to serve as a programming agency for public TV (the corporation would contract with producers for programming rather than become a production agency); recommends creation of two national production centers for PTV: NET and one other; urges setting up research and development centers for programming wherein experimental designs might be prototyped; recommends support of PTV by revenues from an manufacturers' excise tax on new receivers (2%-5%); and strongly encourages additional support from other public and private sources. **(129)**

CARPENTER, C. R., and L. P. GREENHILL. Facilities for instructional television. IN **Educational television, the next ten years.** Stanford: The Institute of Communication Research, 1962. pp. 286-292, 301-326.

The purpose of this chapter is to describe, systematically, certain instructional functions and related television facilities. The descriptions are limited to television activities of facilities which have become known fairly recently as instructional television, which refers to educational efforts using television which have as their purposes the production, origination, and distribution of instructional content for people to learn; efforts in which television is used as the principal or as an auxiliary medium of communication. This conception includes closed-circuit television, limited range broadcasts and even extended broadcast activities which handle information specifically organized and produced for learning. General categories included in the chapter are: (1) the teaching-learning cycle and the role of television; (2) kinds of uses of television in instruction; (3) guidelines for selecting television equipment; (4) planning buildings for instructional television; (5) location of television facilities and relation to possibilities of uses; (6) origination equipment; (7) distribution of television signals; (8) facilities and equipment for presenting televised instruction; (9) facilities for student interactions and responses; (10) needed development in television facilities; and (11) general long-range development. References are included. **(130)**

CONANT, THEODORE R. Closed circuit at Harvard. **Audiovisual instruction** 11:1, January 1966. pp. 24-26.

A multi-channel, closed-circuit system located at Harvard and capable of handling computer information, television signals, and other electronic date is described. This project will make use of the facilities of WGBH Educational Foundation and will provide instantaneous transmission of information. The new computing center, the graduate and undergraduate libraries, and the information transfer system are related units of a common information and communications community. Some of the uses of the system are that: (1) with a high capacity computer, a researcher who has a small computing machine can send information to the main computer for calculation (the results can be viewed on a television screen and then printed out if needed); and (2) the volumes at Harvard can be stored on tapes and will provide access to hundreds at a time. The Harvard Graduate School of Education is determining ways of using television and tapes to capture classroom experiences. Initially, the system will be devoted to more conventional use such as piping lectures, conferences, and ceremonies from one spot to another. **(131)**

CORNBERG, SOL. Design factors in an educational television program production center and random access audio-visual system. **Journal of the Society of Motion Picture and Television Engineers** 72:9, September 1963. pp. 663-667.

This article discusses the television production center for the New York City Board of Education in Brooklyn, New York. Considerations of size, shape, function, traffic flow, space and equipment relationships influenced the design, which was approved at the first showing to some thirty educators, all with varying vested interests. The overall concept of the Center was derived by compiling past experience in commercial television plant planning with an "educated" projection of the New York Board's educational needs. Consequently, the Center is provided with several features unique to an educational facility (figures are included). Equipment to be initially installed includes three live image-orthicon cameras, a vidicon film chain, and two video-tape record and playback machines. **(132)**

LOUIS, WILLIAM C. **Through cable to classroom: a guide to ITV distribution systems.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, 1967. 44 pp.

The technical complement of two publications by the same publisher (**And TV Too!** and **Inquiry: Implications for Televised Instruction**) on the programming and classroom utilization aspects of television, this booklet serves to outline the necessary administrative planning for routing the television picture to the classroom receiver once it has been transmitted to the school. Its emphasis is on the concept of Master Antenna Television systems (MATV). Properly designed, such a system may eventually make possible the organization, storage, and retrieval of a combination of instructional materials which can be instantaneously transmitted to the classroom. **(133)**

Medical educators linked by television. **Educational technology** 7:3, February 15, 1967. p. 17.

A contract to link five medical facilities via television in the Atlanta, Georgia, area for exchanging instructional programs has been announced. Two of the five locations will be equipped with transmitters for originating programs, and all five stations will have receiving systems. Plans for the system call for broadcasts of medical seminars, consultations, and demonstration techniques, among other material, for use in teaching medical students, nurses, and other health professionals. **(134)**

New one-man television studio. **Educational technology** 7:5, March 15, 1967. pp. 9-11.

A new one-man television studio, announced by Westinghouse Electric Corporation, will bring multiclassroom instruction using audiovisual techniques within the reach of every size of school and industrial concern. This unit combines two television cameras and standard audiovisual aids with simplified "up front" controls. An illustration is included. **(135)**

Planning for schools with television. New York: Educational Facilities Laboratories, Inc., 1960. 96 pp.

The primary focus of this study is the facility for the educational program–spaces and equipment for learning in the school. Particular emphasis is placed on the effect of the use of television in the classroom. Titles of major sections are: Elements that Effect our Educational Program; Planning for Schools with Television; Seeing, Hearing, Learning; Educational Facilities in the School; Designs for Group Spaces; and Facts and Sources. **(136)**

RAMEY, JAMES W. Television: growing pains of a new teaching medium. **Journal of medical education** 39:12, December 1964. pp. 1107-1113.

A survey report of the development of television as a teaching medium in medical schools is presented. A brief history of the use of television in medical instruction is first outlined. Results of a 1961 survey conducted to determine the use of television in medical schools are then summarized under the following headings: Acceptance of In-School Television; Rank Order List of Departments Using Television; Funding for Installations; Usefulness as a Teaching Tool; Current Adaptations; and Conclusion. Among other findings, it was determined that only 179 of 1.500 medical departments in the nation were reported as using television and only 141 of them used it enough to talk about their installations in a cohesive, unhesitant fashion. It was concluded that the success of television in the medical teaching situation depends a great deal less on the type of equipment or the capital expenditures than on who is responsible for the operation. **(137)**

ROMANO, MICHAEL T., and IAN C. BENNETT. Concepts and activities of medical center television at the University of Kentucky. **Journal of medical education** 42:9, September 1967. pp. 841-848.

The activities of a new educational resource, Medical Center Television (MCTV), at the University of Kentucky and the concepts which guide this endeavor are described. Its mission is to help the Medical Center staff to communicate more effectively with students, with patients, with one another, and with those outside the Center. There are two types of ETV systems in the Medical Center–one for the College of Dentistry and one for the remainder of the complex. The staff and facilities necessary for METV are reviewed, and some statistics and examples of specific uses are presented. **(138)**

STONESIFER, RICHARD J. The separation needed between ETV and ITV. **AV communication review** 14:4, Winter 1966. pp. 489-497.

In ITV presentation, the educator is usually under heavy pressure to ensure that local control be maintained over programming, and it is generally expected that a system permit the simultaneous transmission of several lessons so that all grade levels, and even student aptitude levels within a single grade, can be served adequately. This nation needs a genuine splitting between the ETV and the ITV function, with the present ETV stations devoted wholly to cultural programming and adult education and the schools handling their own programming on a basis of tightly regional groupings. **(139)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, OFFICE OF EDUCATION. **Educational television: transmission apparatus and minimum performance standard.** Washington: U.S. Govt. Print. Off., 1963. 6 pp.

This is a two-part guide for the use of U.S. Department of Health, Education, and Welfare staff and prospective applicants under Public Law 87-447. It contains the following items: (1) an itemization of transmission apparatus considered to be eligible for grant participation, and (2) a suggested guide for determining acceptable minimum performance standards which will meet the capability of achievement criterion contained in Section 60.13(i) of the Rules and Regulations. **(140)**

Uses of TV in psychiatry. **Audiovisual instruction** 11:3, March 1966. pp. 224-225.

The Nebraska Psychiatric Institute has established a two-way closed-circuit television connection between its center at Omaha and the Norfolk State Hospital 112 miles away. The system is designed (1) to permit more frequent clinical consultations between the two facilities to improve patient diagnosis and treatment; (2) to expand teaching and training assistance to the state mental hospital; and (3) to provide the Norfolk State Hospital with more frequent contact with families in the Omaha area to facilitate information gathering and counseling. Certain specialized medical services can now be furnished via the television link. Television offers a major contribution to the relief of problems posed by the critical shortage of trained medical personnel. **(141)**

WAINE, STANLEY R. Applications of closed-circuit television in medical teaching. **Medical art; journal of the Association of Medical Illustrators**, no. 16, 1965. pp. 22-26.

The planning, administration, and installation of television in medical teaching are discusses. Argument is presented for centralized control of the method by the medical artist in the capacity of Director of Art and Photography; or as Audiovisual Coordinator in medical departments, and the need for well qualified personnel in this area is stressed. The four main attributes of television for use within the medical school environment are listed: (1) immediacy–to transmit an image at the instant the action is occurring (surgery); (2) magnification–to enlarge the image so that it is easily visible to a large group (dental procedure); (3) to reach simultaneously large numbers of scattered students; and (4) to provide observation in areas that are otherwise almost inaccessible to large groups (certain research labs). The flexibility of television is illustrated by a review of the methods employed at Albert Einstein College of Medicine; various aspects of installation and operation are also outlined and illustrated by photographs of the equipment. The article concludes with a brief discussion of the use of television in dental instruction. **(142)**

WEISGERBER, ROBERT A. New video development. **Audiovisual instruction** 11:1, January 1966. pp. 38-41.

New developments and variations in educational television technology are described. Some of the new developments are the transmission of television images over cross-country and local telephone lines rather than coaxial cable, an instructional television fixed service system for sending both monochrome and color video signals, and the transmission of television signals via laser beam carriers. In the storage of programs for later recall such as videotape, there is the development of the video disc. Some companies developing the disc are listed. The need for an instrument to help an administrator to appraise his own program and to find out whether he needs consultant help became apparent, and as a result the University of Oklahoma is under contract for this sort of instrument. Six elements were identified as essential to an adequate educational media program. They were (1) administrative commitment to a system-wide or institution-wide educational media program, (2) educational media as an integral part of curriculum and instruction, (3) an educational media center, (4) adequate physical facilities for the use of an educational media program, (5) an adequate budget for the educational media program, and (6) an adequate educational media staff. The sections of an evaluative instrument described are Commitment of the Administration to an Educational Media Program; Educational Media Services and the Curriculum and Instruction; Educational Media Center; Physical Facilities for Educational Media; Budget and Finance of the Educational Media Program; and The Educational Media Staff. A seventh part is the profile sheet which is designed to project an image of the particular program analyzed. **(143)**

WITHERSPOON, JOHN P. The educational communications system. **Audiovisual instruction** 11:1, January 1966. pp. 10-12.

The educational communications system study which has organized models to provide transmission of computer data, an educational broadcasting network, and transmission of graphic material, teletype, and audio services (mainly for universities) is described. The project, conducted by the National Association of Educational Broadcasters, consisted of four phases: (1) a survey of existing interconnection projects and an overview of institutional cooperation as it might relate to interconnection; (2) a survey of perceived need on the part of the universities; (3) the design of models which could test ideas; and (4) a period of trial operations. Each of the phases is discussed. Three models were organized: an intrastate model; an interstate model; and the educational resources model which is based in New York. Each is briefly described. **(144)**

RADIO INSTRUCTION

HILLIARD, ROBERT L. New directions in educational broadcasting. **Audiovisual instruction** 11:1, January 1966. pp. 13-15.

An overview of the position of educational television today is given. The need to use educational television and radio as resources in education is emphasized. The future prospects of educational television are discussed. The growth of ETV has accelerated from year to year, but broadcast ETV has not yet successfully ventured into a most important area of its commitment: informal instruction to areas that need it most. In many cultural and public affairs areas, significant and controversial subjects can be produced by local ETV stations. Because of Congressional legislation and grants, ETV stations will grow more quickly than first anticipated. New directions for educational radio are suggested. It is playing a major role in the Educational Communications Study conducted by NAEB and has an important function in the Interuniversity Communication Council. Radio has also been used in postgraduate professional situations in areas such as medicine, law, and teaching. Government support has grown for the radio. With research and dissemination, the use of educational radio will be redirected. **(145)**

NICOL, JOHN, ALBERT A. SHEA, and G. J. P. SIMMINS. **Canada's farm radio forum.** Paris: UNESCO, 1954. 235 pp.

The National Farm Radio Forum is a discussion-group project for the rural people of Canada, a farm forum being a group of neighbors who meet once a week from November to March to listen to a special radio broadcast and to study and discuss the topic of that broadcast. The broadcasts, printed material, organized group discussion, and group action are the tools of this experiment in adult education. Its aim is to give farmers a new incentive to group action and neighborliness, and to stimulate thought and understanding among rural listeners which will widen their horizon and help them improve their conditions as farmers. The book contains three separate studies: (1) background information and justification of the program are presented, and the organizational structure is described at the national and regional level; (2) a description of discussion groups in action is given, with an analysis of materials directed to these groups, and with an explanation of the means by which the opinion of the groups is relayed in turn to the control organization; (3) the nature of the program and its effects are illustrated by a review of its operation in one locality. **(146)**

WOOLSEY, FRANK M., JR. Two-way radio and its advantages. **Annals of the New York Academy of Science** 142:2, March 31, 1967. pp. 424-427.

The two-way radio method of instruction in medical education preserves the all-important instructor-student relationship since an interchange of questions, answers, and discussions takes place almost as easily as it does when individuals are face-to-face. Discussed are the technical aspects of the method's hardware, the related visual aids that are available for use in conjunction with the method, and the basic advantages of the method: (1) even through the students and instructors are widely separated, the method preserves the important student-instructor interchange of thought; (2) visual aids are utilized effectively in an inexpensive manner; (3) the participant may receive the instruction without the necessity for travel (instruction is available in community hospitals; it is convenient and time-saving); (4) a larger than usual potential exists for outstanding faculty since the faculty has no need to travel and the conferences require relatively little faculty preparation; (5) the cost is less than with any other comparable instructional method; (6) research recently conducted by the Albany Medical College furnishes data indicating physicians increase both knowledge and skills via two-way radio. **(147)**

TELEPHONE INSTRUCTION

Aerospace engineers attend graduate school by remote control. **Training in business and industry** 5:1, January 1968. p. 41.

At the Instrument Division of Leon Siegler, Inc., Grand Rapids, Michigan where engineers design and develop instrument systems for aircraft, missiles, and spacecraft, a tele-lecture link was established between Grand Rapids and Michigan State University. This tele-lecture link, which enables engineers to work toward advanced degrees, consists of two private telephone lines. One is equipped with a loudspeaker at each end to enable students at both the Instrument Division and in a "live" graduate school classroom at the University to hear the instructor and to participate in class discussions. The other links electronic handwriting equipment at both locations. **(148)**

High school instruction via telephone lines. **Educational technology** 7:23, December 15, 1967. pp. 9-10.

High school classes in physics, mathematics, and English are being transmitted to fiteeen school districts surrounding Texas A&M University via the electronic blackboard-by-wire teaching system. Two-way audio communication permits teacher-student interaction. Graphic and audio material originates at the CATE Center on the Texas A&M campus and three high schools. The graphic information via blackboard-by-wire is supplemented by use of slide projectors or other teaching aids in each receiving classroom. The system also includes an audio unit and a question-indicator panel and microphone which allows communication between instructor and students at a remote location. **(149)**

Long-distance "blackboard-by-wire." **Educational technology** 7:7, April 15, 1967. p. 9.

College classrooms in Kentucky, Tennessee, and New York State were linked by an electronic blackboard-by-wire teaching system that transmits handwriting, as well as voice communications, over telephone lines for long-distance illustrated lectures. (The transmission over closed telephone lines costs substantially less than that of closed-circuit television.) In addition to the television monitor and loudspeaker at each classroom reception point, the system includes an audio unit and a question-indicator panel and microphone which allows the students to ask questions and discuss ideas with the instructor. A light-indicator panel on the instructor's desk-type transmitting console signals him when a student wishes to interject a question or comment. **(150)**

MEYER, THOMAS C. Evaluation of the effectiveness of the telephone conference as a method of postgraduate medical education. IN Abstracts, Conference on Research in Medical Education. **Journal of medical education** 42:9, September 1967. p. 874.

This abstract is a follow-up of an abstract reported by title at the Association of American Medical Colleges' Fifth Annual Conference on Research in Medical Education. Forty-six physicians in 12 communities attended lectures on electrocardiography; the communities were linked by a private-line telephone network with loudspeakers in stations in the community hospitals. A 200-page workbook with diagrams and electrocardiograms was used during the instruction. Results of pre- and post-tests for the physicians and for junior medical students who had covered the same material in the classroom with the same instructor are given. **(151)**

PAULSON, ROBERT L. Tel-a-lecture technique. **Educational screen and audiovisual guide**, June 1963. pp. 316-317.

This article is a description of the uses and development of the tel-a-lecture technique. It consists of having an amplifier hooked to a telephone while the lecturer, who may be miles away, comments on problems, film clips, and other suitable material. This research project has been undertaken by the Malcomb Price Laboratory. Although research is in the early exploratory stage, several principles are already evident. Some of these are: (1) the novelty of the device creates interest that offsets the lack of a personal appearance by a speaker; (2) the most effective part of such a program is the question and answer period; (3) presentation of conference call programs are very well adapted to this device; (4) visual materials are of extreme importance in presentation; and (5) savings of time and money are factors that cannot be ignored in the case of this device. *(ASTD)* **(152)**

Teaching by telephone. **Audiovisual instruction** 12:7, September 1967. pp. 683-687.

Methods of using the telephone for teaching in various parts of the country are cited. In Topeka, Kansas, high schools use the tele-lecture which brings the teacher to the classroom audience via regular telephone lines. This enables the operator to teach several classes simultaneously. Two-way contract is established through the use of microphones; this enables both the lecturer and other classrooms to hear the answer. A telewriting device provides a visual link between leader and student. At UCLA, an adult education course was conducted by phone with thirty students at home or at work. This method is ideal for two-way discussions; other students can listen in. Cornell is using a teach-board-by-wire system to teach. The instructor, using an electronic pen, can draw diagrams which are carried over telephone lines and displayed on television. Shut-in children in New York City are also taught over the phone. Telephone teaching machines provide dial-a-tapes for homework and news. **(153)**

Telelecture. Bell Telephone Company. 28 pp.

Only recently has the telephone been regarded as an instrument for teaching. This pamphlet explains what a telelecture is, how it is used, how to organize the program, the use of audiovisual aids in telelectures, communications requirements, and advantages of the method. **(154)**

FILM INSTRUCTION

ALBERTS, CECIL. A game technique for film evaluation. **Audiovisual instruction** 11:2, February 1966. p. 117.

The language of a film and its influence upon the class is most observable immediately after the film showing. A game technique which may be applied to any film and which encourage intensive discussion of certain aspects is described. This technique necessitates the previewing of the film for selection of key terms. Once compiled, this list of terms can be attached to a spin-a-test device. By spinning the dial the student must respond to the term which comes up on the selector. Full expression of ideas is allowed, and, as a result, many viewpoints will be elicited. **(155)**

ALLEN, WILLIAM H. Research on film use: student participation. **AV communication review** 5:2, Spring 1957. pp. 423-450.

The article summarizes studies relating to the use of participation techniques. (The conditions for participation set forth here require that some kind of overt activity consciously be engaged in by the learner as he is exposed to the communication and that this activity be systematically evoked either by the communication itself or by some other person or device.) The following techniques are considered in this discussion: recitation, "mental practice" (both overt and covert), rehearsal or practice, the knowledge of results, verbalization, discussion, and note-taking. On the basis of the evidence reported in these studies, the following general conclusions can be made with high degree of certainty: (1) during a film showing, learner participation results, under most conditions of instruction, in greatly increased learning from the film; (2) the overt verbalization of responses by the learner results in increased learning; and (3) "knowledge of results" of the learner's overt response also has a positive effect upon learning. The following conclusions can be advanced as hypotheses subject to further investigation: (1) if participation during a film showing requires the practice of a skill demonstrated, the taking of notes, or the performance of any other activity that may divide attention between watching the film and performance of the activity, the film must be paced slowly enough to allow for such division of attention; and (2) mental practice of skills demonstrated, information communicated, or questions asked during or after a film showing will increase the learning under certain conditions. Twenty-seven references are listed. **(156)**

CARPENTER, C. R. (Program Director). **Instructional film research reports**. Vol. I (NAVEXOS P-1220, technical report no. SDC 269-7-36). Port Washington, L.I, N.Y: Special Devices Center, January 1953.

This compilation of research reports was prepared at Pennsylvania State College with joint sponsorship by the Departments of the Army and Navy. The research was conducted in order to discover how to promote the use of films and to increase their effectiveness as an instructional device. The volume is divided into seven sections: I. Theory and Practice; II. Film Research Tools; III. Motor Skill Training; IV. Film Utilization; V. Attitudes and Emotions; VI. Film Production; and VII. List of Reports. *(ERIC 1)* **(157)**

CARPENTER, C. R. (Program Director.) **Instructional film research reports**. Vol. II (NAVEXOS P-1543, technical report no. SDC 269-7-61). Port Washington, L.I., N.Y.: Special Devices Center, June 1956,

This volume is an extension of the previous compilation, bringing it up-to-date (1956). The plan of this volume is identical to the one previous with the exception of the addition of Technical Appendices providing outlines of forms used and statistical tables. *(ERIC 1)* **(158)**

HOBAN, CHARLES F., JR. and EDWARD VAN ORMER. **Instructional film research 1918-1950** (NAVEXOS P-977, technical report no. SDC 269-7-19). Port Washington, L.I., N.Y.: Special Devices Center, 1950.

This is the first of a series of technical reports on films prepared by the Instructional Film Research Program at Pennsylvania State College under joint sponsorship with the Departments of the Army and Navy. The purpose of the report is to bring together in one place the results of many widely scattered investigations made over a period of thirty years in the area of training through motion pictures. The authors of the report add their own interpretations to the research reviews and provide a tentative statement of principles of film influence. The report is organized to emphasize four factors, namely: (1) the end-purpose, or objective, for which the film is produced or used; (2) the characteristics of the audience; (3) the content and structure of the film itself; and (4) the context in which the film is presented to the audience. *(ERIC 1)* **(159)**

JONES, EMILY S. **Manual on film evaluation.** New York: Educational Film Library Association, 1967. 32 pp.

The manual is intended as a practical guide to the complex problem of film evaluation for teachers, librarians, audiovisual directors, and students. It is intended to explain what evaluation is, how to go about it, and how to work with an organization or a committee in a program of evaluation. The contents are: Introduction; Definition of Terms; Why Evaluate; Attitudes of Evaluators; What Is a Good Film?; Before Evaluation Session—The Chairman Prepares; Forming the Committee; Scheduling the Screening; The Evaluation Form; The Top of the Form; Writing the Synopsis; Uses and Audience; Technical Quality; Comments; Rating; The Final Result; Re-Evaluation; Evaluating the Evaluator; and A Final Word. **(160)**

KETCHAM, C. H. and R. W. HEATH. The effectiveness of educational film without direct visual presentation of content. **AV communication review** 11:4, July-August 1963. pp. 114-123.

This study was conducted to determine the following: (1) Can the advancement of factual learning without the reproduction on the screen of the material in the sound track be applied to difficult material of college-level film? (2) To what extent is the effectiveness of such a film aided by repetition? (3) To what extent is its effectiveness aided by note-taking? (4) Used under optimum conditions, how does such a film compare with conventional teaching methods? (5) How well is its subject matter retained? and (6) Who learns best from it? The type of instruction for the various groups was as follows: (1) one showing of film (N-28), (2) one presentation of sound only (N-13), (3) three showings of film (N-32), (4) three presentations of sound only (N-30), (5) three showings of film plus notes (N-35), and (6) classroom instruction (N-16). The total number of S's was 154. The results provided the following information: (1) the effort to present a topic visually need not dominate a teaching film; (2) films of this type are relatively inexpensive; (3) students with relatively low verbal aptitudes can profit especially by the addition of images to verbal presentation. Various tables and figures (graphs) are included in this article and may be readily interpreted. *(ASTD)* **(161)**

LEVERIDGE, LEO L. Films for medical education. **Journal of medical education** 38:4, April 1963. pp. 307-314.

Advantages in using motion pictures in medical education are discussed, and suggestions for developing medical film standards, serviceable to both film users and producers, are suggested and discussed in the following categories: content, authorship, suitability for the medium, presentation (production quality), photography, association of word and picture, suitability for audience, orientation, organization, visual analysis and pointing, pace, length, animated drawings, and music. Some reasons that slide-films (filmstrips) are not used widely in medical education are also discussed. **(162)**

LIRONES, DANIEL S. (comp.). **Sales service policies of educational producers; a handbook for the film buyer.** New York: Educational Film Library Association, Inc., n.d. 63 pp.

The information in this booklet was compiled by the University of Michigan Audio-Visual Educational Center in order to facilitate its film preview, selection, and purchase operations, and as an aid in preparing orders for replacement prints, replacement footage, and revised editions. The replies, gathered by means of a questionnaire sent to the EFLA list of film distributors, were summarized and submitted to the respondents for a final check on accuracy of content. The final data, approved by the producer-distributors, are printed under the following headings: (1) extent of distribution; (2) information on materials; (3) preview policy; (4) discounts; (5) replacement print policy; (6) purchase plans; (7) method of measuring footage of prints; and (8) price for replacement footage, permanent loan or agreement. The names and addresses of the film producers are listed alphabetically, with the information listed above included in each entry. **(163)**

MAY, MARK A. and ARTHUR A. LUMSDAINE, in collaboration with R. S. HADSELL, A. I. GLADSTONE, and J. J. HOWELL. **Learning from films.** New Haven, Conn.: Yale University Press, 1958. 357 pp.

Results of a program of studies called the Yale Mation Picture Research Project are reported. The project was started in 1946 with a grant from the Motion Picture Association of America and ended in 1954. Chapter One is a discussion of areas and problems of research in learning from films. Part I, The Acquisition of Knowledge from Films, contains an introduction by M. A. May (The Main Experimental Variables and Films Used in Part 1) and the following chapters: (2) Pictorial Quality and Color, by A. A. Lumsdaine; (3) Live Dialogue and Off-Stage Narration, by A. A. Lumsdaine; (4) The Readability of the Commentary, by Arthur Gladstone; (5) Overt Practice and Audio-Visual Embellishments, by A. A. Lumsdaine and Arthur

Gladstone; (6) Questions Spliced into a Film for Motivation and Pupil Participation, by A. A. Lumsdaine, M. A. May, and R. S. Hadsell; (7) Attention Directed to Parts of a Film, by A. A. Lumsdaine; (8) The Grade Level of the Pupils, by A. A. Lumsdaine; (9) Previous Instruction on the Topic of the Film, by A. A. Lumsdaine; (10) Cue and Response Functions of Pictures and Words, by A. A. Lumsdaine; (11) Patterns of Words and Pictures, by M. A. May and A. A. Lumsdaine; (12) Verbal Responses to Demonstrational Films, by M. A. May. Part II, Effects of Films on Subsequent Learning Activities, contains an introduction by M. A. May (Films Used, Experimental Variables, and Outcomes Sought), and the following chapters: (13) Gauging the Effects of Films on Reading Interests, by A. A. Lumsdaine; (14) The Reading of a Book Based on a Film, by M. A. May and Nelle Lee Jenkinson; (15) The Improvement of Reading Comprehension, by M. A. May; (16) The Participation by Pupils in Class Discussions, by John J. Howell and M. A. May; (17) Changes in Attitude Toward Due Process of Law, by R. S. Hadsell and M. A. May. Part III, Techniques of Evaluating Instructional Films, contains: (18) Evaluation by Objective Tests, by A. A. Lumsdaine and Mark A. May; (19) Film Evaluation by "Road Testing," by M. A. May and J. J. Howell. Part IV, The Use and Potential of Teaching Films, contains: (20) Survey of Audio-Visual Education in Connecticut Public Schools, by R. S. Hadsell and J. J. Howell; (21) Factors Related to the Use of Motion Picture Films by Public School Teachers, by M. A. May and J. T. Nerden; and (22) Some Implications for Mass Instruction, by M. A. May and A. A. Lumsdaine. Appendices contain results of the experimental evaluation of two films. There is a 75-item bibliography and an index of names and subjects. **(164)**

McGEHEE, WILLIAM and PAUL W. THAYER. Television and films. IN THEIR **Training in business and industry**. New York: John Wiley & Sons, 1961. pp. 207-209.

Television and films, like lectures, depend on passive learning by the trainee. But the most skilled instructor available can be used for all trainees and the subject matter can be more efficiently organized. Close-ups of apparatus and equipment can be presented to large audiences of trainees. A slow rate of development of a limited amount of material should be used in films. A film shoud be re-shown and it should be planned from the trainee's viewpoint. Audience participation should be encouraged by reminding trainees to find and remember important points, and the trainee should be prepared to learn from the films. **(165)**

OFFENHAUSER, WILLIAM H., JR. **16mm sound motion picture: a manual for the professional and the amateur.** New York: Interscience Publishers, 1949. 580 pp.

A comprehensive guide to the theory and practice of 16mm sound motion picutres is presented. The chapter titles indicate the contents: (1) 16mm Film and Its Relation to Other Sizes; (2) Making a 16mm Picture; (3) 16mm Film and Its Characteristics; (4) Making 16mm Originals; (5) Dimensions and Standards in 16mm Film; (6) The Problem of 16mm Emulsion Position; (7) Cameras, Camera Equipment, and Cinematography; (8) Sound, Sound Recording, and Sound-Recording Characteristics; (9) Sound-Recording Equipment and Its Arrangement; (10) Editing and Assembly; (11) Preservation and Storage; (12) Processing and Release Printing; (13) Projection and Projectors; (14) Duplication of Tri-Pack Color Films; (15) Industrial Applications of Current 16mm Sound Motion Picture Equipment; (16) Television and Film. Apendices include: (A) Nomenclature for Motion Picture Film Used in Studies and Processing Laboratories; (B) Symbols Proposed for Motion Picture Equipment; (C) Percent Transmission vs. Photographic Density; (D) Comparison of Emulsion Speed Values; (D) Decibels Gain or Loss vs. Voltage and Current Ratio and Power Ratio; (F) ASA Standards vs. Government Specifications. A subject index is included. **(166)**

STAUDOHAR, FRANK T. and ROBERT G. SMITH, JR. The contribution of lecture supplements to the effectiveness of an attitudinal film. **Journal of applied psychology** 40:2, April 1956. pp. 109-111.

The method, results, and discussion of a study that evaluated one way of making attitudinal films more effective in the accomplishment of specific training objectives are presented. The report describes an experimental evaluation of the effect of lecture supplements to a film on expressed attitudes toward discipline. The lectures were designed to point out significant sequences in the film which were thought to stress the need for discipline in the military services. Three lectures were developed, comparable in content. One was used prior to the film, another after, and a third was designed to be presented in part before and in part after the film. The subjects hearing lectures with the film were generally more favorable in attitude toward military discipline than those who saw the film alone. There were, however, no statistically significant differences between the positions of lectures in their effect on attitude toward discipline. References are included. **(167)**

FILM SOURCES

AMERICAN SOCIETY FOR TRAINING AND DEVELOPMENT. **Film recommendations from the membership of ASTD**, as compiled by the Research Committee. 2nd edition. St. Louis, Mo.: University of Missouri, Extension Division, 1967. 11 pp.

Presented is a listing compiled by members of the St. Louis, Missouri, Chapter of the American Society for Training and Development. *(USCSC 1, edited)* **(168)**

LEADERSHIP RESOURCES, INC. **Training film index** (Learning about Leadership series). Revised edition. Washington, D.C.: Leadership Resources, Inc., 1961. 34 pp.

An organized listing of 16mm training films is presented. Suggestions for securing films are given, including sources such as public libraries, colleges and universities, social agencies, and commercial film libraries. Films are listed alphabetically first, according to subject headings, then according to titles. The producer, year of production, length of film, black and white or color, cost of rental and/or purchase, and a brief annotation are given for each film listed. Subject headings are: audio-visual aids; communication; community action and citizens responsibility; human behavior and human relations; leadership; sales training; supervision; and training methodology (including learning and teaching theory, conferences and discussions, role-playing, laboratory training, buzz groups, and job instruction). An index according to titles, a directory of film producers and distributors listed in this index, and some suggestions for using films are included. **(169)**

NATIONAL INFORMATION CENTER FOR EDUCATIONAL MEDIA. **Index to 16mm educational films.** New York: McGraw-Hill, 1967. 955 pp.

This is an offset printing of the computer print-out of the master file of film data at the National Information Center for Educational Media, University of Southern California (Glenn McMurry, director). The purpose of the Center is "to catalog and store in computerized form current and comprehensive data on all types of nonbook educational media–motion pictures, filmstrips, recordings, transparencies, and similar materials." This volume is the first of a number to be published by the McGraw-Hill on materials now in the master file. Three basic uses intended for the volume (as indicated in the Introduction) are: (1) to enable organizations to identify their own holdings with titles listed in the master file for the purpose of preparing film catalogs by the Automated Cataloging System; (2) to give audio-visual staff, library personnel, and teachers a resource guide to the 16mm educational motion pictures that have been recorded on the USC master film since 1958; and (3) to give the producers and distributors an opportunity to see their materials in relationship to the materials of other producers and distributors in the educational field. The index is divided into four principal sections: (1) Subject Matter Section (an outline of subjects precedes this section); (2) Alphabetical Title–Descriptive Section; (3) Producer-Distributor-Production Credit Section–Alphabetical by Code; and (4) Producer-Distributor-Production Credit Section–Alphabetical by Name. Pertinent subject headings are: Education (education–general, counseling, educational psychology, instructional technology, library science, methods, special education, teachers and teaching, and testing and research) and Psychology (psychology–general, adolescent development, child development, mental health, mental symptoms–clinical, physiology, nervous system, and research and testing). Communication is listed under the heading Social Science and the terms medicine and public health education are under Health and Safety. **(170)**

Sources of motion pictures and filmstrips (Kodak pamphlet no. S-9). Rochester, N.Y: Eastman Kodak Company, January 1967. 22 pp.

The purpose of this booklet is to list some sources of information which may be helpful in film selection. The contents are entitled: (1) Introduction; (2) How to Obtain Films–Local Distributors, Regional and National Distributors, Etiquette for a Film Borrower; (3) General Catalogs of Films and Filmstrips; (4) Selected Subject Lists of Films and Filmstrips–Agriculture, Business and Industry, Civic-Social Welfare-Recreation, Education, Government, Medical, Religion, and Specialized Fields (8mm Films, Television). **(171)**

TECHNICOLOR COMMERCIAL AND EDUCATIONAL DIVISION. **Sound film loop source directory; educational films in instant loading movie-cartridges.** Costa Mesa, Calif.: Technicolor, March 1968. 53 pp.

Sound film loops cartridged for the Technicolor Model 1000 Super 8 optical sound instant movie projector are listed for ease in locating them by subject matter or by film producer. Subject headings and subheadings (in addition to traditional educational and subject matter categories) include: Business (business administration, management development, business training, sales training); Education (special education, teacher training, training); Guidance; Health Education, Hospital Training; Industry (management training); and Vocational Training. **(172)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. NATIONAL LIBRARY OF MEDICINE. NATIONAL MEDICAL AUDIO-VISUAL CENTER. **National Medical Audiovisual Center film catalog 1968** (Public Health Service Publ. No. 776, rev. 1968). Washington: U.S. Govt. Print. Off., 1968.

Formerly issued as the **Public Health Service Film Catalog**, this is a subject and title listing of motion pictures, filmstrips, and audiotapes distributed by the National Medical Audiovisual Center. Listings include title, order number, producer/sponsor, year of release, revision information, physical description, language versions other than English, series reference, film content, and credits. Distribution and utilization activities of the Center are also described and suggestions for obtaining and using films are included. **(173)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. NATIONAL LIBRARY OF MEDICINE. NATIONAL MEDICAL AUDIO-VISUAL CENTER. **1968 film reference guide for medicine and allied sciences.** Published by the Federal Advisory Council on Medical Training Aids FACMTA (Public Health Service Publ. No. 487, rev. 1968). Washington: U.S. Govt. Print. Off., 1968. approx. 398 pp.

This guide is published annually to provide a basic catalog of selected audiovisuals used in biomedical education by member agencies (Department of the Air Force–Office of the Surgeon General; Department of the Army–Office of the Surgeon General; Department of the Navy–Bureau of Medicine and Surgery; Armed Forces Institute of Pathology; Department of Health, Education, and Welfare–Public Health Service; and Veterans Administration–Department of Medicine and Surgery). Materials included are currently available for loan or rental. Contents are organized so that a list of subject headings and subheadings used is presented first and is then followed by the information on specific films by subject. Entries include title, producer, date, length, presence of sound and/or color, film size, type of material (motion picture or filmstrip), and distributor. Following the subject index are the title index and the distributor listing. **(174)**

United States Government films/catalog. New York: U.S. Government Film Service, Du Art Laboratories, n.d. 47 pp.

The films listed in this catalog have been produced under the auspices of the U. S. Government. Prices have been established by contract with the General Services Administration of the U. S. Government. The films should be purchased from Du Art Film Laboratories, a publicly owned company whose basic business is the printing and processing of 8mm, 16mm, 35mm, and 70mm theatrical, television, industrial, and educational films. Films are listed by number in sections according to the originating organization: Office of Education; General Services Administration; U. S. Department of Health, Education, and Welfare, Office of the Secretary; U. S. Department of Labor; U. S. Post Office; U. S. Public Health Service (Films and Filmstrips); Veterans Administration; U. S. Department of Agriculture; and U. S. Department of Defense (Department of the Navy and Office of Civil Defense). Information given includes the title, physical description, cost, and brief summary of content. An index at the back lists titles alphabetically. **(175)**

WHALEY, RANDALL McVAY. ASFA's National Film Clearinghouse. **Audiovisual instruction** 11:2, February 1966. pp. 112-113.

Despite the fact that the motion picture is a primary means of presenting information, a research study of the National Research Council indicated that half of the working scientists depend upon personal contract and correspondence to keep abreast of current developments in their fields. As a result, the American Science Film Association was founded to handle the need for a broadly based organization to serve all of the scientific disciplines in exchanging information about scientific films. The organization does not ask anyone for the use of the film; it puts callers in touch with people who can answer their questions. Various projects of the ASFA are briefly described and past activities are enumerated. **(176)**

8 MM FILMS

8mm directories. 8: **Newsletter of 8mm film in education.** No. 4. February 1967. p. 5.

The problem of keeping informed about the number and subjects of 8mm films being produced are discussed. One aid is the Source Directory published by Technicolor Corporation of America. Information about subjects, producers, and objectives of films is included in the latest edition. Forms of 8mm other than Technicolor R8/S8 are not listed. Another aid under development is an 8mm directory to be published by the Educational Film Library Association, Inc. It will include all formats of 8mm, with listings of addresses, prices, and non-evaluative descriptions. The University of Southern California computer system for locating films is mentioned as another approach. A critical problem is the lack of standardized procedure for describing film content. **(177)**

EVANS, ARTHUR G. 8mm film as a practical substitute for videotape. **Audiovisual instruction** 11:2, February 1966. pp. 98-100.

The method of using an 8mm system for preserving large group lectures in both audio and visual form is described. The camera, lens, blimp, magazine, sound-recorder, and film used are described. The processing, sound-dubbing, and playback facilities are also discussed briefly. **(178)**

FORSDALE, LOUIS and JOAN ROSENGREN FORSDALE. The new 8mm format. **Audiovisual instruction** 11:1, January 1966. pp. 31-34.

The renovation of 8mm film from standard 8 to format M allows twenty percent more picture area; for super 8, the picture area is fifty percent greater. This situation is similar to the change over from 78rpm records to 33-1/3 and 45. Some guides to making decisions include the following factors: (1) standard 8 is not dead; (2) super 8 is a strong movement; and (3) format M is a factor only with respect to release prints. Educators, in deciding to use 8mm, should weigh certain factors: (1) the extent of his current commitment to standard 8; (2) the likelihood of finding among his fellow teachers some who have the time, interest, and talent to begin and follow through on the local production of films which are particularly pertinent to their work; and (3) the amount of money available for research and development. **(179)**

McRAE, RONALD K. Eight mm. filming by and for the teaching department. Part I. **Medical and biological illustration**, vol. 14, October 1964. pp. 237-243.

Problems in using 16mm films in teaching are listed and the advantages of a teaching department's holding and making its own films are discussed. The 8mm format is recommended and suggestions are made for selecting equipment. **(180)**

MILLER, ELWOOD E. Single concept films: criteria for clipping. **Audiovisual instruction** 12:1, January 1967. pp. 36-38.

A single concept film is a segment of a film with a short, discrete, describable instructional content. The following are a few of the basic issues and problems of the single concept film: (1) the crop is ripe for the film producer (no less ripe for the educator); (2) large volumes of single concept films are necessary to make any real impact on instruction and then learning; (3) the decision to excerpt single concept materials from existing films poses some very knotty problems for the film producers; (4) assuming many of the problems could be overcome, what are the criteria that really make it possible to identify suitable single concept type materials within presently circulated instructional films? Two things must happen in the near future in order for a genuine breakthrough to take place in the single concept field: (1) better hardware is necessary, and (2) substantial quantities of short, filmed segments of a single concept must appear. **(181)**

MILLER, ELWOOD E., JAMES L. PAGE, ARDITH HANNAH, and LLOYD TRINKLEIN. Film clip project: halfway point. **Audiovisual instruction** 11:1, January 1966. pp. 34-35.

Developments related to the objectives of the Michigan State Single Concept Film Clip Project are described. All educators, film producers, and manufacturers agree that a cartridge is necessary to enclose the film and that film clips must be marketed in the same price realm as reference books. Points of disagreement occur on the problems of whether the film (1) should be sound or silent, (2) should be optical or magnetic, and (3) whether 8mm is adequate. An experiment designed to measure the value of short film clips is described. The results indicate that short clips are as effective as the full film; however, a combination of the two methods is more effective than either alone. **(182)**

News notes: have you seen these? **Audiovisual instruction** 12:5, May 1967. p. 512.

8mm Film: Its Emerging Role in Education, a new 16mm, 25-minute color documentary film for educators that describes the use of 8mm film as a teaching tool in schools in the United States, is now available from the U. S. Office of Education. The film shows examples that provide a wide range of illustrations and innovations in the use of this medium. The accessibility of film as a medium for education is sketched and compared to that of printed media. Sequences show how 8mm film is used in class instruction, small group instruction, and independent study; in developing the ego of children; in instructing handicapped children; and in providing review of lectures. **(183)**

NORTH, A. FREDERICK. Learning clinical skills through the use of self-teaching films. **Journal of medical education** 42:2, February 1967. pp. 177-180.

A recently developed self-contained projection system has overcome many barriers to efficient and effective use of film in teaching clinical skills. Brief one-subject films which contain only visual material that cannot be described or illustrated well with printed matter or still photography can be used. This type of system has been used at the University of Rochester School of Medicine and Dentistry to teach the techniques of the Gesell neurological and developmental examination to fourth-year medical students and pediatric house officers. The potential of this device for teaching other clinical subjects seems great, and further exploration of its usefulness appears to be desirable. References are included. **(184)**

Research into film form. 8: **Newsletter of 8mm film in education**. No. 5, May 1967. p. 6.

The expanding development of "8" means accessibility of film to everyone, a development comparable in importance to Gutenberg's interchangeable type. The form "8" does not mean merely "little 16" just as movable type did not merely mean more copies of the Bible to the masses. It meant development of new forms of print (novels, newspapers, third-class mail, etc.). New forms of film will now result. Every major film producer should be committing talent to research into new forms. **(185)**

Single concept film conference (TFR-1245). Atlanta, Ga.: U.S. Public Health Service, 1965. 16mm, sound, black-and-white, 28 minutes.

This film consists of speeches given during a conference at which the single concept film was introduced as a teaching tool to leaders in biomedical education. **(186)**

U. S. Government in "8". 8: **Newsletter of 8mm film in education**. No. 5, May 1967. p. 6.

Under GSA (General Service Administration) contract GS-005-51304, the Department of Health, Education, and Welfare, the Veterans Administration, and the United States Navy have awarded to Modern Talking Picture Service, Inc., the rights to distribute certain medical films in Fairchild 8mm cartridges film. This establishes a precedent which could lead eventually to the release of government films in many categories in 8mm form; thus making them available at a much more reasonable rate. **(187)**

WRIGHT, ROSCO and JOHN R. CUMMING. "8" in student teacher education and evaluation. **Audiovisual instruction** 11:2, February 1966. pp. 100-102.

The use of an 8mm home movie camera and tape recorder as a means of capturing a student-teacher in action is described. The types of camera, recorders, and lighting available and their costs are discussed. Recommendations are made for the use of this recorded material. **(188)**

FILMSTRIPS

Amateur filmstrip production. Columbus, Ohio: Ohio State University, Teaching Aids Laboratory.

This is a brief, practical description of how to make filmstrips with a 35mm camera. **(189)**

Filmstrips: use, evaluation, and production (Manuals on Adult and Youth Education–1). Paris: United Nations Educational, Scientific, and Cultural Organization, 1959. 54 pp.

"Use of Filmstrips," by Robert Lafranc, discusses the place of filmstrips in out-of-school education: gives fifteen advantages and seven limitations of the filmstrip; lists circumstances in which filmstrips may be used; and suggests typical uses of filmstrips–motivation, illustration, identification, analysis, demonstration, instruction, drill, recapitulation, dramatization, testing, discussion, and recreation. Commentaries (outlines inserted among other frames, printed commentary, and recorded commentary) are discussed. Precautions and considerations in the use of filmstrips include conditions for projection; checking the light source; use of a suitable screen; seating the spectators; method of darkening; ventilation; presentation techniques before screening, during the presentation, and after the session; and use of the filmstrip in conjunction with other audiovisual material. "Evaluation of Filmstrips," by Helen Coppen, discusses the two stages of testing the filmstrip: during production and in circulation. Testing the filmstrip in circulation requires a cumulative record card of the emotional or attitudinal response of the audience, the increase knowledge, and the acquisition of skill and changes in practice. A model of such a card is presented. A user's report form from the assessment of filmstips, which is reproduced, is also helpful. It provides for documentation (distribution data, style of treatment, and summary of contents); personal assessment of the filmstrip (appropriateness, effectiveness, accuracy, and technical quality); indication of suitability for particular audiences; and a final assessment based on the items previously mentioned. "Production of Filmstrips" includes composition of the production unit, stages of production, criteria for the selection of pictures, equipment required in a production center, technical problems in filmstrip production by indirect methods, and installations required by a medium-scale production unit. **(190)**

News and notes: have you seen these? **Audiovisual instruction** 12:5, May 1967. p. 510.

A new 12-minute, color-sound filmstrip entitled, "The Sound Filmstrip System–The Method," which is aimed at helping industry and education understand the concept of audiovisual education through the use of sound filmstrips is announced. Documented in the production are audiovisual techniques including sound effects, cartoons, color photography, narration, and background music. All of the essential steps of production are shown, and the economics and suitable projection equipment of this medium are covered. The distributors provide the sound filmstrip for viewing without charge. **(191)**

TROW, WILLIAM H. and EDGAR A. SMITH. **Filmstrip techniques for individualized instruction** (AMRL-TR-65-78). Wright-Patterson AFB, Ohio: Behavioral Sciences Laboratory, May 1965. 16 pp.

Considerations invloved in the choice of filmstrips over slides to prepare filmed programmed instruction include revision, quantity, length, storage, recycling, aspect ratio, change time, random access, and continuous repetition. Each factor is briefly discussed. Costs of filmstrips and slides are compared, quoting prices typical of high quality work in a metropolitan area. A guide is given to the preparation by staff photographers of "do-it-yourself" filmstrips, including a description of cameras, preparation of flat copy, exposure, splicing, and standard specifications for 35mm filmstrips. Other film formats with possible application in audiovisual programming–8mm, 16mm, and microfiche–are described and illustrated. **(192)**

SLIDES

Effective lecture slides (Kodak pamphlet no. S-22). Rochester, N. Y.: Eastman Kodak Company, August 1967. 8 pp.

This pamphlet is a brief practical guide to the use of slides in technical lectures and instruction. Though the emphasis is on 2" x 2" slides, the information is intended to apply also to other projected visuals. Tables and photographic samples are used in illustration of the material. **(193)**

KING, WILLIAM H. What's new in cameras? **Audio-visual instruction** 11:3, March 1966. pp. 216-217.

Twelve cameras produced by four manufacturers and ranging in price from $15 to $500 are suitable for educational use in producing slides. Specific advantages, such as suitability for the inexperienced and lens speed, are pointed out. All of these cameras have been used and are more than satisfactory for regular school use. **(194)**

Some sources of 2 x 2 inch color slides (Kodak pamphlet no. S-2). Rochester, N.Y.: Eastman Kodak Company, April 1967. 11 pp.

The pamphlet lists producers and distributors of color slides in the following subjects: architecture and fine arts; religion; science, medicine, and nature; travel and scenics. The list is not intended to be comprehensive. **(195)**

TEXAS UNIVERSITY, VISUAL INSTRUCTION BUREAU. **Production of 2 x 2-inch slides** (Bridges for Ideas No. 7). Drawer W., University Station, Austin, Texas.

Chapters include: (1) Physical Properties of 2 x 2-inch Slides; (2) Why Use 2 x 2-inch Slides?; (3) Need for Local Slide Production; (4) Minimum Equipment and Supplies; (5) Desirable Equipment and Supplies; (6) Techniques Used in the Production of Color and Black-and-white Slides; (7) Copying Techniques; (8) Printing Black-and-white Positive Slides; (9) Processing Techniques; (10) Mounting and Binding Positive Slides; and (11) Sources of Material and Equipment. There is a bibliography. **(196)**

AUDIOTAPE RECORDINGS

COHEN, CHESTER G. Training with pocket-size tape players. **Training directors journal** 17:4, April 1963. pp. 24-26, 28-29.

This article describes the uses of pocket-size tape recorders as training devices and the conditions which have made possible their effective utilization. They are useful primarily for: (1) job orientation and familiarization; (2) plant tours; (3) customer training; (4) home study programs; (5) explaining product data to employees; and (6) talking trainees through the work routine. Conditions which have made feasible the use of tape players are: (1) the availability of small, high quality recorders at low cost; (2) an increase in jobs in semi-isolated work locations where job instruction by prevailing methods is impractical; (3) research findings which validate the effectiveness of sound recordings in training situations; (4) an increase in the number of temporary or substitute workers; and (5) an enormous increase in the demand for training. *(ASTD)* **(197)**

COOPER, THEODORE R. Helping the student teacher develop instructional expertise via the tape recorder. **Audiovisual instruction** 12:10, December 1967. p. 1072.

The use of the tape recorder is recommended to assist the supervisory teacher, because it helps the student-teacher to evaluate himself. The tape may be replayed as necessary, and only a certain amount of the recording may be played at a time. Advantages of using the tape recorder to improve teaching competence are: an increased amount of responsibility is placed on the student-teacher for his own improvement, it is easier to objectively point out teaching weaknesses to the student-teacher, and a tape library of real teaching situations can be developed. **(198)**

EDUCATORS PROGRESS SERVICE. **Educators guide to free tapes, scripts, and transcripts.** 12th annual edition. Randolph, Wis.: Educators Progress Service, 1965. 209 pp.

A brief introductory essay, "Listening–How Much and to What," by Walter A. Wittich, and two brief chapters on selecting playback equipment and selecting and ordering audio materials, are followed by annotated listings of free tapes, scripts, and transcripts in the following subjects: Agriculture, Conservation, Economics, Health Education, Home Economics, Language Arts, Music, Religious Education, Safety and Accident Prevention, Science, Social Studies, and Teacher Education. Title, subject, and source and availability indexes are included. **(199)**

FRIEDMAN, HERBERT L., CYNTHIA NORRIS GRAAE, and DAVID B. ORR. **Further research on speeded speech as an educational medium–materials comparison experimentation.** Washington, D.C.: American Institutes for Research, September 1967. 32 pp.

This is the final report in a series which covers a wide range of experiments concerned with important variables in the comprehension of time-compressed speech. This series was essentially a continuation of a group of experiments completed under an earlier grant between 1963 and 1965. The main focus of this research has been on the potential application of tape-recorded compressed speech in the college setting as a teaching tool. Two major questions have been asked: How well can college students comprehend connected discourse which has been compressed from normal to as much as three-times normal rate? How may that comprehension be improved with practice? In general, the findings have demonstrated that exposure to compressed speech will improve the comprehension of compressed speech. Reports of several different studies, generally giving information about the subjects, materials, procedures, data analysis, and findings are recorded in this booklet. Numerous explanatory tables and figures and references are included. **(200)**

LALIME, ARTHUR W. Tape teaching. **Audiovisual instruction** 12:5, May 1967. pp. 453-458.

One approach to individualized instruction involves the use of the tape recorder, earphones, and student response sheets. A school which desires to use prerecorded materials as a means of providing instruction for individuals and small groups can take this step without a major expenditure. The author gives a brief history of education's use of tapes including the development of the Tape Institute at Mt. St. Scholastica College, Atchison, Kansas, by Benedictine Sisters with Ford Foundation funds. Workshops are held by the sisters each summer to train teachers in the techniques of scriptwriting and tape recording. The article points out advantages that taped lessons give the teacher, such as allowing more time. A reading program using tapes is described, as are an arithmetic program, a summer tape project, and a tape library at the Norwalk Schools. The prepackaged taped lessons, the teachers' guide, and the student worksheets which the Norwalk Schools use are described; 60 to 100 lessons are used there per teacher each week. Various devices such as jackboxes, tape tables, audio carts, earphones, tape recorders, and wireless earphones are discussed. Sources of tapes and prerecorded instructional materials are given. **(201)**

NATIONAL CENTER FOR AUDIO TAPES. **National audio tape catalog**. Washington, D.C.: National Education Association, 1967. 114 pp.

Approximately 5000 tapes useful as instructional material are included in this compilation. Listed are materials for all grade levels including college, with some listed as appropriate for adult populations. Sections of the catalog are: 1. General Information; 2. Subject Area Listing with Series Description; 3. Alphabetical Listing by Individual Titles; 4. Explanation of Producer Codes. Information given on each tape includes Library of Congress subject classification, grade level, series title and description, producer, production or acquisition date, restrictions, individual program titles, and playing time for each program. The National Center for Audio Tapes is sponsored by the Department of Audiovisual Instruction of NEA, the National Association of Educational Broadcasters, and the University of Colorado. The University of Colorado has developed guide lines for audio tapes which include recommendations and procedures for equipment, maintenance, tape specifications, storage facilities, and general information such as tape splicing, editing, maintenance techniques, tape libraries, and references on audio tapes, including audiotape programs of instruction. Details on securing these guidelines are available from the Center or from the Department of Audiovisual Instruction, NEA **(202)**

ROBERTS, R. R., JR. and G. A. RENZAGLIA. The influence of tape recording on counseling. **Journal of counseling psychology** 12:1, 1965. pp. 10-16.

A study has been conducted to determine how the recording of psychotherapy sessions affects the participants. Three variations of recording conditions and counselor awareness were employed to determine differential effects: (1) tape recorder present and visible; (2) microphone present and visible but connected to recorder elsewhere; and (3) no visible recording devices, but secretly recorded. Eight second-year students in a rehabilitation counselor training program (in their last quarter of practicum) participated as counselors. Clients were students from introductory psychology courses screened for a high interest in the counseling field. No significant differences were found in quantity or ratio of talk between counselor and client under these varying recording conditions. Qualitatively, clients spoke more favorably about themselves when the tape recorder was visible than when it was not. Counselors were more client-centered in the "absence" of recording. Apparently the experimental conditions alone account for the differences found. *(ASW)* **(203)**

SHARPS, WALLACE S. **Tape recorder manual**. London: Fountain Press, 1960. 180 pp.

Recognizing the increasingly widespread uses of the tape recorder, this book gives a detailed treatment of its use. Chapters are: I. The Meaning of Sound; II. How the Tape Recorder Works; III. Choosing the Recorder for You; IV. How to Use the Tape Recorder; V. Recording Sound on Tape; VI. All about Stereophonic Tape Recording; VII. How to Edit Tape; VIII. All about Tape Playback; IX. Tape and the Amateur Film-Maker; X. The Tape Recorder in Business; XI. Tape Recording for Pleasure; XII. The Tape Recorder in Education; XIII. Dictionary of Tape Recording. In Chapter XII there are sections on its use for: training teachers; conferences; taping facts; learning languages; exchange recordings; thought and speech; speech correction; history and politics; bird watching; music analysis classes; taping the radio; and adult education. There is an index. **(204)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **The tape recorder** (Bridges for Ideas #8). Drawer W., University Station, Austin, Texas.

Chapters include: (1) The Tape Recorder; (2) Principles of Magnetic Recording and Playback; (3) Preparation for Use of Tape Recorder in the Classroom; (4) Operating the Tape Recorder in the Classroom; (5) Classroom Use of the Tape Recorder; (6) Provisions for Care and Operation of Equipment; (7) Storage of Materials, Equipment, and Accessories; (8) Selection of a Tape Recorder; and (9) Sources of Materials, Equipment, and Accessories. A bibliography and glossary are appended. **(205)**

TRUAX, CHARLES B., ROBERT R. CARKHUFF, and JOHN DOUDS. Toward an integration of the didactic and experiential approaches to training in counseling and psychotherapy. **Journal of counseling psychology** 11:3, Fall 1964. pp. 240-247.

Tape recordings are used in empathy training. The trainee listens to taped statements and is then asked to reformulate the essential communications in terms of both the feeling and the content of the communication. Because the trainee must focus upon the meaning of the patient's communication, it is felt that this procedure tends to sharpen his listening skills and sensitivity. **(206)**

OVERHEAD PROJECTION, TRANSPARENCIES

CHRISTENSEN, RICHARD. Instant personal blackboard. **Audiovisual instruction** 11:3, March 1966. p. 218.

The use of the overhead projector makes it possible to conduct a class as if the whole class were working at the blackboard. The equipment needed in addition to an overhead projector is: clear plastic sheets (X-ray sheets); grease or china marking pencils; and cheesecloth. Whatever work the teacher wants to put before the class can be done at the desk on the plastic sheet and projected so it can be discussed. The teacher is able to correct work with a transparent grease pencil which projects red. Colleges have been using this method in literature and composition classes. It can be used efficiently in almost any group instruction situation. **(207)**

Diazochrome projectuals for visual communication. Holyoke, Mass.: Technifax Corporation, 1964. 34 pp.

The techniques described in this booklet are intended to provide the basic information required for the preparation and use of Diazochrome projectuals. Chapter titles are: Introduction; Overhead Projection; Overhead Projectors; Overhead Projection Techniques; Diazochrome Projectuals; Printing and Developing Equipment; Originals for Projectuals; Masters for Multi-Color Projectuals; Preparation of Texray Masters; Printing and Mounting; Techniques; Pin-Registration; Negative Projectuals; Other Projection Systems; Display; Charts and Graphs; Natural Color Transparencies; Polarized Projectuals; Visulite; Materials and Equipment; and Technifax Training and Service Centers and Distributors. **(208)**

DUERST, L D. A system of overhead projection. **Audiovisual instruction** 8:5, May 1963. pp. 332-333.

The overhead projection system installed in the school of the Boeing Company Transport Division is discussed. The idea principally consists of moving the projector close to the screen, removing the built-in mirror, installing a new mirror from the ceiling, and rotating the screen about a hinge at the top. Some of the advantages are that space is gained for seating students in classrooms, the projector is more convenient to instructor's chalkboard position, and there is less obstruction to the view of the students sitting directly in front of the screen. **(209)**

FINSTAD, ALLAN. A quick method for transparencies. **Audiovisual instruction** 2:1, January 1957. pp. 18-19.

The making of visual materials with inexpensive portable equipment that uses the diazo and "transfer" processes is described. The process is carried out under room light conditions. Making a transparency from an opaque page requires two steps. First, a negative "transfer paper" is exposed to the material to be copied. Then the negative is developed in contact with a transparent "transfer film" which receives the image by transfer. The result is a positive transparent copy of the original. This copy is projectable. **(210)**

FRYE, HARVEY R. Techniques for making transparencies. **Educational screen and audiovisual guide** 38:6, June 1959. pp. 288-290.

The following steps briefly illustrate how to make a transparency by the Transpora-Film process: (1) choose a picture of good quality with no abrasions or wrinkles on its surface; (2) it is important that only pictures printed on clay-coated papers be used; (3) trim the picture slightly longer than desired and cut a piece of Transpora-Film the same size or slightly smaller; (4) it is important that the picture contain no moisture; (5) the press must be set at a temperature of 270 degrees to make transfers; (6) place the film-picture combination in soapy water for 5 or 10 minutes; (7) when water has penetrated the paper surface, pull off the paper backing; (8) with a piece of cotton or a soft rag, wash off any remaining white clay or paper fibers or you will not have a good transparency; (9) although the resulting transparency will project, an even better projection can be obtained by giving the ink side of the film a light coat of clear plastic such as is available in spray cans. The transparency is now ready to mount as desired. **(211)**

KLOOSTER, TED. Buying and using the overhead projector. **American school and university** 36:5, January 1964. pp. 34-35.

The following questions should be considered before buying an overhead projector: (1) Does the particular classroom have appropriate electrical outlets? (2) What about screens? (3) Where will the overhead projector be placed—both in use and when not in use? (4) Where are you going to put the transparency maker? (5) What kinds of transparency materials are needed? (6) What about spare parts and servicing? **(212)**

NATIONAL EDUCATION ASSOCIATION. DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **Bibliographical sources on the use of the overhead projector.** Washington, D.C.: National Education Association. n.d. Mimeo. 12 pp.

Included are lists of special books and pamphlets; publications of the government, learned societies, and other organizations; periodical articles; unpublished materials; sources of overhead projectors; sources of ready-made transparencies; sources of materials and services for making your own transparencies; sources of copying machines; a list of five how-to-do-it films; and names and addresses of two sources of single-concept films on audiovisual production techniques (such as lettering, dry mounting, laminating, composition, and manipulative devices). **(213)**

National repository for overhead transparencies. **Audiovisual instruction** 10:7, September 1965. pp. 588, 590.

A progress report (directed by Raymond Wyman) on an NDEA Title VII project investigating the necessity and feasibility of establishing a national center to collect, evaluate, duplicate, and distribute locally produced overhead projection transparencies is discussed. Phase I is concerned with the need for a center and the availability of locally developed overhead transparencies; a questionnaire is to be sent to the local producers of transparencies to determine quantity and characteristics of available transparencies and conditions under which copies might be made available to others. Phase II will examine the needs and desirability of correcting or improving masters. Recent studies have indicated that the overhead projector is the most purchased and most wanted audiovisual device at the present time. **(214)**

NELSON, G. K. Overhead projection in the classroom: unconventional—but it works. **Audiovisual instruction** 8:5, January 1963. pp. 334-335.

In answer to the question might there be a better way than the conventional one of projecting slides from the middle or rear of the room, the article suggests that the projector might be safely positioned on the teacher's desk or on a nearby stand at the front of the room where slides for the day's lesson are on an illuminated viewer and can be selected and projected as needed. The basis for this procedure is simply a mirror a few feet in front of the projector which reflects the light back and up onto the screen; the mirror should be positioned low enough for the students to see over the top and mounted in such a way that it can be moved forward and back to vary the size of the picture. **(215)**

Overhead projector and desk. **Educational technology** 6:6, March 30, 1966. p. 21.

An overhead projector-and-desk combination for use in schools, institutions, and industry is being produced. The "electric blackboard" attachment for the projector permits students to see what the teacher writes as she writes it. **(216)**

SCHULTZ, MORTON J. **The teacher and overhead projector: a treasury of ideas, uses, and techniques.** Englewood Cliffs, N.J.: Prentice-Hall, 1965. 240 pp.

This book is a reference volume to be used in assisting the teacher in doing a more effective job; the reader can get maximum advantage from it by referring to its pages when the need arises. Titles of chapters are: Transparency Overhead Projection—The Teacher-Oriented System; The Transparency—Versatility Personified; Use of the Overhead Projector in the Teaching of Science; Use of the Overhead Projector in the Teaching of Mathematics; Use of the Overhead Projector in the Teaching of Reading; Use of the Overhead Projector in the Teaching of the Language Arts; Use of the Overhead Projector in the Teaching of the Social Studies; Use of the Overhead Projector in the Teaching of Foreign Languages; Use of the Overhead Projector in the Teaching of Foreign Languages (continued); Use of the Overhead Projector in Vocational Training and the Industrial Arts; Use of the Overhead Projector in Business Education; Use of the Overhead Projector in Teaching Arts and Music; and Use of the Overhead Projector in Teaching Other Subjects. The appendix is a listing of companies which manufacture and produce equipment and materials for overhead projection. An index is included. **(217)**

Slidemaster system: instructional manual. Holyoke, Mass.: Technifax Corporation, 1964. 21 pp.

This system is an integrated process for the production of Diazochrome multi-colored projectuals. Sections included in this booklet are entitled: Technifax Slidemaster System; Proto-Printer, Description; Pickle-Jar Developer, Description; Proto-Coupler, Description; Technifax Diazo Materials; Diazo Masters; Exposure Technique for Proto-Printer; Developing Technique for Pickle Jar; Mounting of Projectuals; Proto-Printer Maintenance; Spare Parts List; Proto-Printer Drawing (Rear View); Proto-Printer Drawing (Exploded View); Compression Assembly Drawing; and Glossary of Terms. **(218)**

Source directory: prepared transparencies. Rochester, N.Y.: Graflex, Inc. 24 pp.

This source directory provides ready reference for users and purchasers of overhead transparencies. Companies making transparencies are entered alphabetically in grade level and subject matter listings. Also included are principles of overhead projection. A second group of listings includes the publishers, company names, and addresses where transparencies can be obtained. Particular specifications of the transparencies available from particular companies are also included. **(219)**

SPEAR, MARY E. Tape method for transparencies. **Educational screen and audiovisual guide** 36:3, March 1957. pp. 136, 138.

One way to make transparencies is to use pre-printed patterned tapes. When a deletion is necessary, it is easily "erased" by peeling off the tape. In addition to the tapes there is a good selection of transparent symbols which may be used in many ways. (Instructions for using the tapes and transparent symbols are included.) The advantages of the tape method are ease in handling, the neatness and visibility of the graphs on projection, the simplicity of making changes or corrections, the re-use of the acetate (tapes leave a clean surface), and the few tools and materials needed as they require no professional drafting ability. **(220)**

The Technifax system for polarized projectuals: instruction manual. Holyoke, Mass.: Technifax Corporation, n.d. 10 pp.

Sections included in this booklet are entitled: Principles of Polarization; Polarization Effects; Technifax Omni-Kit; Technifax System for Polarizing Projectuals; Orientation of Projectuals; Polarizing Hints; Creating Motion with Polarization; Types of Motion; and Application of Ready-Made Motion Materials. **(221)**

TEXAS UNIVERSITY, VISUAL INSTRUCTION BUREAU. **The opaque projector** (Bridges for Ideas No. 10). Drawer W., University Station, Austin, Texas.

This handbook illustrates the use of opaque projectors in education and in professional and industrial training programs. Chapter titles are: Introduction; What is the Opaque Projector; Uses of the Opaque Projector; Preparation of Materials for Opaque Projection; Good Practice; Specialized Techniques; Care and Maintenance; and Summary. A bibliography is appended. **(222)**

TEXAS UNIVERSITY, VISUAL INSTRUCTION BUREAU. **The overhead system: production, implementation, and utilization.** Drawer W., University Station, Austin, Texas.

Chapter titles indicate contents: Handmade Transparencies; Heat Transfer Transparencies; Diazo Transparencies; Photographic Transparencies; Planning Your Visuals; Color-Lift Transparencies; Mounting Transparencies for Projection; Commercially Produced Overhead Materials; Special Uses and Effects; and Implementation of the Local Overhead Program. **(223)**

They see what you mean–visual communication with the overhead projector. Johnson City, N.Y.: Ozalid Division, General Analine and Film Corporation.

This is an illustrated text on the various phases of transparency production and use. **(224)**

VISUAL AIDS – DESIGN AND USE

ALLNER, W. H. **Posters.** New York: Reinhold Publishing Corporation, 1952. 119 pp.

Fifty artists and designers analyze their approach, their methods, and their solutions to poster design and poster advertising. Representative works are included. **(225)**

Artwork size standards for projected visuals (Kodak pamphlet no. S-12). Rochester, N.Y.: Eastman Kodak Company, October 1966. 8 pp.

The pamphlet is intended for those who prepare graphic materials that will be converted into projected images or who plan, order, or use such materials. It attempts to show that (1) artwork can be planned and executed to ensure legibility in the projected images, and (2) there are worthwhile advantages in establishing and making standard sizes for graphic materials. The subject is discussed under the following headings: Legibility Requirements, Advantages of Standardization, Recommended Sizes and Formats, and Specialized Applications. **(226)**

Audiovisual planning equipment (Kodak pamphlet no. S-11). Rochester, N.Y.: Eastman Kodak Company, December 1967. 7 pp.

This pamphlet gives specifications and suggested applications for three time-, money-, and work-saving devices having many practical applications in audiovisual work: a planning board, planning cards, and a slide-sequence illuminator. They are relatively simple to fabricate and can be made from readily available, inexpensive materials. **(227)**

CARMEL, JAMES H. **Exhibition techniques–traveling and temporary.** New York: Reinhold Publishing Corporation, 1962.

The book is a manual for the planning, production, and presentation of both temporary and traveling exhibitions. It is not designed to be comprehensive, but rather concentrates on exhibition methods and techniques that have proved to be successful. The material is fully illustrated with color and black-and-white photographs, drawings, and diagrams. Chapter titles indicate contents: (1) Planning: Audience, Subject, Size, Design and Layout, Cost, Duration, Community Participation; (2) Production: Material Displayed; Framework; Matting, Framing, and Hanging; Labeling; Lighting, Exhibition Devices; Packaging; Transporting; (3) Presentation: Scheduling, Contracts and Instructions, Insurance and Protection, Publicity, Educational Activities; Supplement: Structural Framing Systems. A bibliography and an index are included. **(228)**

COPLAN, KATE. **Poster ideas and bulletin board techniques for libraries and schools.** Dobbs Ferry, N.Y.: Oceana Publications, 1962. 183 pp.

This illustrated guide to the subject contains the following chapters: (1) Communicate Through Visual Display; (2) Color Notes; (3) Creative Posters; (4) Attention-Getting Bulletin Boards; (5) Classroom Practices; (6) "How-to" Helps; (7) The Care and Preservation of Display Materials. Supplementary chapters–Touching on the Seasons, Some Holidays and Special Events, and A Miscellany of Display Ideas–include materials and methods for suggested posters. Appendices contain sources of supplies and equipment and suggested readings. **(229)**

CRESS, HAL J. and RICHARD A. STOWE. Slide captions made easier. **Audiovisual instruction** 12:1, January 1967. pp. 51-54.

The use of hook 'n loop letters for slide captions is discussed. The letters are made of white plastic on the back of which are small swatches of fabric that contain dozens of tiny hooks which fasten to a board covered with tiny loops. Various uses of hook 'n loop letters are discussed with accompanying illustrations. **(230)**

FOLLEY, J. D., JR. **A preliminary procedure for systematically designing performance aids** (ASD technical report 61-550). Washington, D.C.: U.S. Department of Commerce, Office of Technical Services, October 1961. 40 pp.

Performance aids are devices or documents that facilitate task performance by humans in a system. These supplementary aids to performance can enhance the overall quality of a system by assisting in achievement of more nearly optimal man-machine function allocation by reducing the level of requirement on selections, training, and manning, or by raising on-the-job performance levels. Four steps in the design of performance aids are presented: (1) identification of task elements for which aids should be provided; (2) determination of appropriate functional characteristics of aids for these task elements; (3) specification of the physical design characteristics of the aids to carry out the functions; and (4) evaluation, modification, and updating of the aids. Supplementary data on capabilities of performance aids are presented for use with the procedure. The procedure is untried and of necessity uses stopgap solutions to problems on which much research or development is needed. *(ASTD)* **(231)**

GARDNER, JAMES and CAROLINE HELLER. **Exhibition and display**. New York: F. W. Dodge Corporation, 1960. 192 pp.

An illustrated guide to the principles and practices of exhibition and display is presented. Chapter titles are: Principles–What Exhibition Can and Cannot Do, Displaying Goods, Setting Ideas, Circulation and Stand Layout, The Eye, Lighting, Special Effects, Plants, Features; Practice–Goods and Services, Ideas and Information, Things for Their Own Sake, Exhibition in the Street, Traveling Exhibition, A Look at the Brussels Fair. A final section, Procedure, contains a technical appendix. **(232)**

GARLAND, KEN. **Graphics handbook**. New York: Reinhold Publishing Corporation, 1966. 95 pp.

An illustrated manual on the theory and practice of graphics is presented. The section titles, along with the subject division within the sections, are: (A) Some Useful Concepts (concept and use of codes, concept and use of coordinates, concept and use of networks, concept and use of redundancy); (B) Organizing Information (the basic pattern of the communication process, typical sequence in the production of printed information); (C) Photography (characteristics of different types of cameras, effect of lenses of different focal length, effect of aperature stop on the image, effect of selective focusing on the image, images of the same object under different lighting conditions, consistent scale in product photography, some ways of representing movement photographically, photographic distortion of letter forms, establishing verticals in the image without a rising front); (D) Printing (four printing methods, folding and binding, constraints on the placing of type areas, typical impositions for saddle-stitched and square-backed bindings, some categories of paper suitable for printing, paper sizes, some main categories in typeface design, specifying print for quotations; (E) Processing for Print (use of the cross, line screen for halftone screens, shapes and combinations of halftones, scaling-up art work and photographs, making instructions for fitting-up or stripping-up); (F) The Designer's Tools (tools for drawing and painting, tools for measuring and ruling, the telephone as a tool for the graphic designer); and (G) Some General Information (comparative dimensions: English-American and metric, methods of drawing projection, classification system, selection of mathematical signs with wide applications, bibliography). **(233)**

GARRETT, LILIAN. **Visual design: a problem-solving approach**. New York: Reinhold Publishing Corporation, 1967. 215 pp.

The intention of the book is not to impart information but to stimulate and provide a structure for imagination and inventiveness in visual design. It is meant to be used as a reader becomes engaged in the feeling, sensory, and thinking processes that precede and accompany creative activity and is for this reason designated "a problem-solving approach." Concepts and ideas are stated briefly and explained and demonstrated by illustrations. The processes described and their results can be adapted to any form of visual expression, and the book can be used by teachers, students, designers, or artists in all fields involving two- and three-dimensional design. Contents are: Part One, Visual Forces–(1) Mass-Space Elements and Variables; (2) Shape; (3) Space, Movement, and Time; (4) Organization and Structure; Part Two, Working Processes and Problems–(1) The Working Out: Tool, Material, and Process; (2) Developmental Problems; (3) Student Solutions; (4) Problems. A bibliography is included. **(234)**

HAEMER, K. W. **Making the most of charts: an ABC of graphic presentation**. New York: American Telephone & Telegraph Company, 1960. 41 pp.

The book, discussing the simpler, less technical matters of graphic presentation, reduces the procedure for using graphics to three basic rules: (1) use graphic presentation only when it serves the purpose better than words or figures; (2) select the best graphic form for the purpose; and (3) follow the principles of effective presentation. Graphics, as discussed in this book, is the presentation of figures (quantities) in graphic form. There are three major kinds of graphics that can be used for presenting quantities: charts, maps, and diagrams. To present graphics effectively, four principles must be followed: be direct, be simple, be clear, and be accurate. **(235)**

HAYETT, WILLIAM. **Display and exhibit handbook.** New York: Reinhold Publishing Corporation, 1967. 111 pp.

Designed as a guide to the planning, designing, preparation, and construction of displays and exhibits, the handbook provides simplified, step-by-step illustrated instructions to those unfamiliar with the subject. Chapter titles are: Forms and Structures; Construction Materials; Covering Your Structure; Mounting Techniques; Lettering and Typography; Art Materials and Equipment; Photography; Lighting and Motion; and Ready-Made Exhibits. A glossary of related terms is included. **(236)**

HORN, GEORGE F. **Bulletin boards.** New York: Reinhold Publishing Corporation, 1962. 71 pp.

Processes and techniques for creating effective teaching bulletin boards are presented. The book is composed basically of illustrations with comments. Chapters include: (1) Check Your Bulletin Board; (2) Tools and Materials; (3) Organizing Materials To Be Displayed; (4) Lettering; (5) Raising Flatwork; (6) Displaying Three-Dimensional Objects; (7) Background Shapes; (8) Titles and Descriptive Matter; (9) Color; (10) Controlling Movement; (11) Focal Points; (12) Expanding the Bulletin Board; (13) Linking Separate Bulletin Boards; and (14) Layout. **(237)**

JEX, GARNET W. **The presentation chart: its use and its preparation.** Washington, D.C.: U.S. Department of Agriculture Graduate School, 1961. 32 pp.

This booklet summarizes much of the material that has been covered in the course, "The Graphic Arts in the Federal Government," offered by the U.S. Department of Agriculture Graduate School. The course gives special emphasis to the forms and uses of the presentation chart. The problems of the user, the graphic supervisor, and the production staff are considered. A bibliography is included. **(238)**

McHUGH, FRANCIS J. **Graphic presentation.** Holyoke, Mass.: Technifax Corporation, April 26, 1956. 14 pp.

In the area of visual communication there are three major categories: text material, visuals, and technical drawings. Visuals, including all visual materials that are used to clarify, strengthen, and speed the communication process, can be divided into three types of presentation: lettered, graphic, and pictorial. There are four fundamental forms of graphic presentation: graphs, charts, maps, and diagrams. Because of its abstract and thus generalized nature, graphic presentation requires some degree of experience and intellectual maturity on the part of the producer and on the part of the reader or user. Perhaps the greatest advantage of graphic presentation is its ability to communicate quickly, clearly, and memorably; thus, a graphic presentation should be prepared for that purpose alone. It should be prepared, and used when, and only when, it will do the job better and quicker than any other method of communication. In the conception and execution of a graphic presentation, four factors should be considered: the subject, techniques, audience, and place. Generally, two persons or groups of persons are involved in this conception and execution: the originator and the producer. Nine explanatory figures are included. **(239)**

METZL, ERVINE. **The poster: its history and its art.** New York: Watson-Guptill Publications, 1963. 183 pp.

An illustrated history of posters from the late middle ages to the present is presented. Chapter titles describe the contents: (1) Why This Book (Introduction); (2) Posters Are Not Exactly New; (3) Lithography and New Freedom; (4) The Poster Becomes Fine Art; (5) Queen Victoria's Unwritten Rules; (6) America and Posters; (7) The Poster in Germany; (8) Posters Go to War; (9) Posters Become Big Business; (10) Posters Come Back to Europe; (11) Posters Become International; (12) America Goes Its Own Way. An index is included. **(240)**

Planning and producing visual aids (Kodak pamphlet no. S-13). Rochester, N.Y.: Eastman Kodak Company, April 1966. 16 pp.

The methods of planning and producing visual aids described are those in current use by the Audio-Visual Service, Eastman Kodak Company. Contents are: Five Forms of Visuals; Team Approach; Visual Media; Planningboard Card; Picture Story; Help to Photographer; Three-Dimensional Title Letters; Colored Light on Title Letters; Progressive Disclosure; Outline Maps; Other Lettering Methods; Casual-Style Art; Color Versus Black and White; Color from Black and White; Material Simplification; Illustrated Script for Lecture Aid; and Sources of Materials. **(241)**

POTTER, DAVID J., JOEL MOSS, and HERBERT F. A. SMITH. **Photosituations: a technique for teaching.** Minneapolis, Minn.: Burgess Publishing Company, 1963. 115 pp.

The technique presented here consists of presenting the students with pictures and having them write down their observations and their reactions to various problems contained in the pictures. These can then be discussed; buzz groups can work over various aspects; and/or the students can dramatize the situation by role-playing. A series of pictures used to teach future teachers, together with sample questions for each picture, are given. **(242)**

SHETTEL, HARRIS H. and PAMELA C. REILLY. Evaluation of existing criteria for judging the quality of science exhibits. **AV communication review** 14:4, Winter 1966. pp. 479-488.

The study reported here was designed to determine only the extent to which the statements made in the published literature regarding the qualities of scientific and technical exhibits are meaningful and unambiguous. This was done by conducting a rating scale, the items of which were drawn from the exhibit literature. By having persons qualified in the exhibit field use the scale and comparing their ratings, the reliability of the statements could be measured. On the basis of these interrater measures, it could be concluded that the existing criteria for determining the effectiveness of an exhibit, as contained in the exhibit literature, are not adequate or, at least, not sufficiently reliable. The discussion is supported by tabular illustrations. References are included. **(243)**

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TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Better bulletin board displays** (Bridges for Ideas #11). Drawer W., University Station, Austin, Texas.

This booklet offers ideas for bulletin board displays. Chapter titles are: Bulletin Board Displays; Planning the Display; Preparing Design; Selecting and Lettering Captions; Preparing the Display; Evaluating the Display; Ideas for Bulletin Board Designs; and Sources of Free and Inexpensive Pictorial Materials. A bibliography is appended. **(244)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Educational displays and exhibits** (Bridges for Ideas #9). Drawer W., University Station, Austin, Texas.

Chapter titles are: Purposes of Displays and Exhibits; Educational Advantages; Guidelines for Preparing Exhibits; Design Principles Applied; Bulletin Board Displays; Exhibits; and Dioramas. A bibliography is appended. **(245)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Felt boards** (Bridges for Ideas #3). Drawer W., University Station, Austin, Texas.

Chapter titles are: The Felt Board; Construction; Materials; Tips on Presentation; Reminders; Illustrative Uses; and Sources of Materials. A bibliography is appended. **(246)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Lettering techniques** (Bridges for Ideas #4). Drawer W., University Station, Austin, Texas.

Chapter titles are: Functions of Lettering; Functions Served Through Character; Functions Served Through Legibility; Applied Uses; Preparation of Lettering; Basic Formation of Letters; Spacing; Hand Lettering; Ready-Cut Letters; Mechanical Lettering; and Source List. A bibliography is appended. **(247)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Local production techniques.** Drawer W., University Station, Austin, Texas.

Topics are: dry mounting, laminating, spray lettering, use of lettering guides, projection for production, suggested list of supplies, and equipment–amount and sources. **(248)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Models for teaching** (Bridges for Ideas #6). Drawer W., University Station, Austin, Texas.

Chapters are: Definition of a Model; Kinds of Models; Purposes Defined; Applications in Subject Matter Area; Criteria for Selecting a Model; Suggestions for Use; Construction of Models; Procedure; Special Techniques; Commercial Models; Producers of Commercial Models; and Sources of Commercial Models. A bibliography is appended. **(249)**

TEXAS UNIVERSITY. VISUAL INSTRUCTION BUREAU. **Tear sheets** (Bridges for Ideas #1). Drawer W., University Station, Austin, Texas.

Chapter titles are: What Are Tear Sheets; What Is The Value of Tear Sheets; What Makes a Good Tear Sheet; What Are Some Ways of Displaying Tear Sheets; How Are Tear Sheets Mounted; How Are Tear Sheets Filed; Where Can Tear Sheets Be Found; and Where Can Other Pictorial Materials Be Obtained. **(250).**

TER LOUW, ADRIAN L. **Legibility standards for projected materials** (Kodak pamphlet no. S-4). Rochester, N.Y.: Eastman Kodak Company, 1965. 8 pp.

The two main factors determining the legibility of materials viewed in the classroom are the design of the material displayed (the symbols and details to be discriminated must be large enough and of good design and visual contrast) and the conditions under which it is displayed (some of the factors to be considered are the brightness of the task area, the presence of high contrasts and bright spots in the surrounding field of view that cause glare within the eye, and the presence of contrast-reducing illumination). Viewing conditions for various classes of material are first discussed. The limitations of students' visual acuity is related to legibility of material, and standards for minimal symbol size for given viewing distances are presented. Further discussed are symbol design, line weight, direct viewing versus projection, and multiple-use art work. A table of drafting standards and a universal table of symbol height are included. The article concludes with a discussion of standards for pictorial material and for labels in photographs. **(251)**

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE. PUBLIC HEALTH SERVICE. NATIONAL COMMUNICABLE DISEASE CENTER. **Pen and pad–a handbook for flip chart preparation** (by Robert E. Bates, Jr. and Donald M. Lovell). Atlanta, Ga.: the Center, n.d. 44 pp.

The fundamentals of flip chart preparation and detailed procedures for producing pen and pad visuals are given. The basic rules and elements required in designing good visuals are explained and the correct methods for legible lettering are shown. Illustrations show ways to draw faces and stick figures, and several methods for enlarging or reducing drawings are described. **(252)**

VERNON, M. D. Presenting information in diagrams. **AV communication review** 1:3, Summer 1953. pp. 147-158.

A study on the comprehension and effective use of diagrams is presented. (Various types of diagrams are used in illustration.) From the study, the following general conclusions were drawn: (1) presenting factual information in diagrams, and even in pictorial charts, does not ensure that it will be understood and remembered any better than presenting it in tables of figures, although greater interest may be created; (2) special training is required to enable people to understand diagrams and make use of them properly; (3) the more complex and unfamiliar the information, the concepts, and ideas which it involves, the less likely people are to understand it, irrespective of the particular type of diagram used; (4) certain sets of data, however, are shown best by certain types of diagrams; (5) people usually understand diagrams better when they are presented alone; and (6) the best form of verbal explanation is given by a simple, logical argument; but readers require special training to enable them to utilize graphic material effectively and to recognize that it demonstrates the particular facts upon which the generalizations of the argument are based. References are included. **(253)**

FACILITIES

AUGER, B. Y. **How to find better business meeting places: a businessman's guide to hotel, motel, and resort meeting places.** St. Paul, Minn.: Business Services Press, 1966. 637 pp.

This volume, recognizing the need to increase communcation and efficiency between other businesses and hotels and motels, gives attention to the problems that beset both businesses and hotels and motels in the setting up of business meetings and examines and suggests ways that problems can be solved when they occur. Chapter 1, A Hard Look at Business Meetings, suggests certain criteria that should be considered in choosing a meeting place. Chapter 2, Services and Sites, is concerned with the services the hotel renders to make its guests comfortable and the reasons for the selection of the site of the meeting. Chapter 3, Making Your Meeting Pay, suggests concrete plans to be considered in terms of achieving the meeting's objectives (the agenda, delegating of duties, aspects to consider in checking the meeting room, seating arrangements, equipment, and visual aids). Where to Meet and How to Find It, the major portion of this volume, consists of an alphabetical list of hotels and motels in 40 U.S. metropolitan areas, followed by a list of more than 20 U.S. resort areas. Information includes: largest group accommodation, sleeping room accommodations, meal rates, meeting rooms, special exhibit areas, convention season, and parking facilities. Appendix 1, Meeting Services, lists firms that rent equipment, services, and supplies that might be useful in planning and conducting the meeting. Appendix 2, Reservation Services, lists telephone numbers of chain hotels and motels that will reserve accommodations in advance, if available, at any other member of the chain. **(254)**

AUGER, B. Y. Making your meeting pay. IN HIS **How to find better business meeting places: a businessman's guide to hotel, motel, and resort meeting places.** St. Paul, Minn.: Business Services Press, 1966. pp. 31-49.

Care should be taken to consider the objectives of the meeting. The most important consideration in a meeting is to create a working atmosphere in which participants will communicate freely. A written agenda should be distributed at least two weeks before the meeting. After the hotel or motel has been selected, the meeting room should be checked for ventilation, electric outlets, acoustics, room access, and lighting. Seating arrangements should be made before the meeting. (Diagrams of various arrangements are given.) The hotel or motel probably will not own audiovisual equipment, but it should have a source for rental. (It is best for the company to bring its own equipment.) The importance of visual aids at meetings is emphasized; several tables give information on screen sizes and projectors. Points to consider in the effective use of blackboards, easel pad presentations, flannelboards, chart presentations, the overhead projector, the opaque projector, the slide projector, filmstrips, and motion pictures are presented. **(255)**

AV meeting rooms. **Training in business and industry** 4:7, July 1967. pp. 25-31.

This article is a survey of meeting rooms in seven leading firms: the 3M Company, Montgomery Ward & Co., Wilding Inc., Ford Motor Company, Deere & Company, Alcoa. Discussions of designs of the rooms, furnishings, lighting, equipment, and facilities are included. **(256)**

CAMPBELL, SHELDON. Mobile classrooms. **Journal of the American Society of Training Directors** 14:11, November 1960. pp. 31-35.

This article points out many advantages of using expandable trailers as mobile classrooms. Mobile classrooms would be particularly desirable in the following circumstances: the employees to be trained work in several buildings dispersed over a fairly large land area; the firm has two or more branches separated geographically but within reasonable commuting distance; the firm simply has run out of covered space and does not want to add more buildings; and the firm wishes to avoid capital expenditure for additional buildings or facilities. **(257)**

CARPENTER, C. R., L. P. GREENHILL, R. E. SPENCER, W. H. WIEGAND, J. D. MILLER, J. M. CARTEY, and A. R. BIGATEL. **A faculty office study: design and evaluation.** New York: Educational Facilities Laboratories, Inc., 1961. 18 pp.

The report presented was prepared by the Department of Physical Plant Planning and Construction and the Division of Academic Research and Services of the Pennsylvania State University, supported by a grant from the Educational Facilities Laboratories, Inc. The project limits the design studies, the full-scale construction for testing, and the evaluation to exploring a model for adequate but economical two-person offices, varied arrangements of the basic model, and the possible uses of these arrangements. The two appendices contain an evaluation form and a summary of reactions of faculty members. **(258)**

De BERNARDIS, AMO. To carrel or not to carrel? that is the question. **Audiovisual instruction** 12:5, May 1967. pp. 439-440.

With the current flexibility in the storage and retrieval of learning media, there is a tendency on the part of school planners and educators to formalize the spaces where these learning materials will be used. Most modern schools provide study carrels for independent study and the author finds the usual carrel to have an inherent problem: it removes the learner from distractions and puts him in a confined space. The proposal is that study spaces should be put in places where there is action. Some retrieval stations planned around comfortable chairs with end tables and footstools, maybe a lounge chair, might provide a better environment for listening to music and poetry, reading, etc. The challenge to the media specialist is clear. He should apply the same imagination and creativity to the use of the new educational technology as have those who develop the hardware. **(259)**

EDUCATIONAL FACILITIES LABORATORIES. **Divisible auditoriums.** New York: The Laboratories, 1966. 48 pp.

This booklet is concerned with the evolution of the concept of architectural divisibility and the acoustics of divisibility. The first section shows the growth and progress of the divisible auditorium. Numerous diagrams of auditoriums are included. The second section outlines the acoustical problems for the architect and his acoustical consultants. **(260)**

EDUCATIONAL FACILITIES LABORATORIES. **New building on campus: six designs for a college communcations center.** New York: The Laboratories, 1963. 58 pp.

This report presents graphic interpretations by six architectural firms of the answers Rensselaer Polytechnic Institute proposed after inquiry into these questions: What are the specifications for buildings that would facilitate greater educational potential? What kinds of spaces and facilities are needed to provide a more hospitable setting for the new teaching tools and the new teaching methods they demand? **(261)**

FALLER, R. R. Training facilities. IN Craig, Robert L. and Lester R. Bittel (eds.). **Training and development handbook.** New York: McGraw-Hill, 1967. pp. 410-427.

The chapter is a review of the fundamental considerations in setting up a new training facility or revising an old one. It is intended primarily for training directors, and is designed to serve as a brief practical guide to the subject. Four categories of training facilities are dealt with: I. Space Facilities (ventilation, openings, accessories, soundproofing, flooring, painting, general comfort, utilities, storage space, security); II. Basic Equipment (seating, tables, ash trays, name-card holders, writing equipment); III. Audiovisual Equipment (slide projectors, sound-slide projectors, sound-slide movie projectors, movie projectors, overhead projectors, opaque projectors, optical terms, loop film, dimmers, screens, tape recorder, optional equipment, telephone); IV. Mobile Training Facilities (trailers, railroad cars, utility sources). Graphs, drawings, and tables are used in illustration of the discussion. **(262)**

GOLD, LEONARD, and ISABEL M. WOLF. Teaching psychiatric interviewing techniques to medical students. **Journal of the American Medical Association,** vol. 194, November 29, 1965. pp. 1014-1015.

The use of a one-way screen in a teaching situation is illustrated. A psychiatrist and a psychiatric social worker teach techniques of interviewing to medical students at New York Medical College. The course consists of four weekly sessions of two hours each. After an introductory lecture, students take turns interviewing patients while the rest of the class observes through a one-way glass. Each interview is then reviewed from the standpoint of patient and student reactions. **(263)**

GREEN, ALAN C. (ed.), M. C. GASSMAN, WAYNE F. KOPPES, RAYMOND D. CARAVATY, and DAVID S. HAVILAND. **Educational facilities with new media.** Troy, N.Y.: National Education Association, Department of Audiovisual Instruction, in collaboration with the Center for Architectural Research, Rensselaer Polytechnic Institute, 1966. 209 pp.

The book is the result of a two-year architectural research study providing guidance on the optimization of conditions for learning by providing physical environments most conducive to learning when media are employed in the educational process. It is designed as a guide to the programming and planning of educational facilities, and related material from the research study–data, design studies, planning premises, reactions, and conclusions–has been collected and organized for this purpose. The material is divided into three reports and is directed to the following audiences: Report A–boards, administrators, planning committees and institutional planners; Report B–architects, planners and design specialists; Report C–architects, engineers, equipment and furniture suppliers, and media specialists. Report and chapter titles are: Report A–A Guide for Policy Makers, (1) Learning Media: An Overview; (2) Contemporary Education: Concerns and Directions; (3) Innovations in Education: Role of Media; (4) Learning Media: Status and Trends; (5) Learning Media: Implications for Planning; (6) Programming: Defining Building Needs; Report B–A Guide for the Design Professions, (1) Learning Media and Facilities: A Review; (2) Planning Schools for Media: General Principles; (3) Facilities with Media: Planning Guidance; (4) Design Criteria: An Overview; and Report C–A Technical Guide, (1) Technical Concerns: An Introduction; (2) Environment for Media: Lighting, Acoustics, Climate; (3) Environment for Media: Furniture; (4) Hardware for Media: Projection Systems; (5) Hardware for Media: Other Equipment. **(264)**

HUNSAKER, HERBERT C. and RICHARD PIERCE (eds.). **Creating a climate for learning; an edited report of a national conference on architecture for adult education** (sponsored by the Adult Education Association of the U.S.A. and the Division of Adult Education, Purdue University). Washington, D.C.: Adult Education Association, n.d. 116 pp.

Conference goals were to: (1) identify current problems, deficiencies, and obstacles encountered by adult educators in their present facilities; (2) analyze the nature and characteristics of adults, examine goals of adult learning, and project future program trends with a view to developing a set of principles to guide educators and architects in planning the plant for adult education; (3) stimulate further research to determine the influence of environmental factors upon adult education in various institutional settings (universities, libraries, public schools, and churches); (4) develop better communications among architects, adult educators, institutional administrators, and others concerned with planning facilities for adult education. Selected sections are: A Case History: Planning Purdue's Memorial Center; Looking Toward Solutions: Some Guides to Planning; Environment Teaches. Partial contents of the Appendix are: Discussion Groups: Some Problems in Planning; Physical Facilities Questionnaire; Environmental Survey Questionnaire (Indianapolis). **(265)**

JUSTIN, J. Karl. Lecture hall and learning space design. **Journal of the Society of Motion Picture and Television Engineers**, vol. 75, March 1966. pp. 183-190.

The critical factors in design of a lecture hall as presently conceived are explored in the hope that the analysis will lead to a better understanding of these factors and their interrelationships, thus setting the stage for the development of even newer techniques. Some approaches to this creative challenge and bases for economic analysis are also discussed. Several conclusions are drawn: (1) the pressure of increasing college population and the quest for improvement in quality require extensive development of learning facilities, fully utilizing the available audiovisual technology; (2) although further study is needed in some cases, criteria, parameters, and variables are all mathematically and directly interrelated in ways known within the current state of the art; and (3) there are specific considerations that potentially limit viewing distance and audience sizes. References and a bibliography are included. **(266)**

MARTIN, KEITH F. Triangular classrooms promote av instructional techniques. **Audiovisual instruction** 12:8, October 1967. pp. 818-819.

Triangular-shaped classrooms (basically shaped like a right triangle with the teacher's station located at the right angle) have been included in the plans for the new Riverside Junior High School now being built in Watertown, Wisconsin. This shape will improve the acoustical qualities of the room and provide advantages for visual instructional techniques. The triangular-shaped rooms also reduce the total cost of the building. The audiovisual suite includes production facilities and will double as the darkroom for photography. The school has been designed with an instructional materials center that will process and house the professional library; listening booths; library classroom; the tape, record, and filmstrip libraries; and the visual library equipment and instructional materials. **(267)**

New corporate training center. **Educational technology** 7:23, December 15, 1967. pp. 17-19.

Learning facilities, complemented by a computer-managed visual instruction system, are included in the marketing education center opened in Atlanta by Eastman Kodak Company. The center's facilities include seminar rooms, CAPAL (computer and photographic-assisted learning) study rooms, laboratory and workshop area, photo studio, multipurpose room, graphic arts center, and x-ray area. **(268)**

New lecture-demonstration facility. **Educational technology** 6:21, November 15, 1966. pp. 10-11.

After students go into the lecture hall, the lights dim and 18 television monitors (strategically located so that all students will have a good view of what is going on) begin to lower. On a rotating stage a parade of laboratory experiments begins to appear on the tv screens. Behind the scenes instructors and assistants continue to prepare experiments, and the session goes on as the head instructor lectures with a cordless microphone. When the session is over, more students come into the lecture hall, which can accommodate about 4,000 students a day. **(269)**

PETERSON, O. H. **Basic requirements of meeting room facilities—for effective audiovisual communications.** New York: Association of National Advertisers, Inc., 1966. 23 pp.

The basic audiovisual factors that should be considered in the design of meeting rooms and in the selection of a conference site are set forth. These specifications should benefit not only those responsible for specifying meeting room requirements, but also those whose communications requirements need to be defined and met. They should also benefit the meeting planner in evaluating the sufficiency of available conference sites in relation to his audiovisual needs. The first section discusses basic meeting room requirements; the second offers a blueprint for a well-designed conference room. An appendix contains an American Oil Company Planners' Guide and Screen Size Chart. A bibliography is included. **(270)**

Systems approach in school construction. **Educational technology** 7:13, July 15, 1967. pp. 6-9.

A systems approach to school construction, enabling communities to build better schools faster and more economically, was ruled a success in a new report published by Educational Facilities Laboratory describing the School Construction System Development (SCSD) project in California. The project involved the development of a system of modular, pre-engineered components—a structural system, ceiling and lighting components, air-conditioning units, interior partitions (fixed, demountable, and operable), cabinets and laboratory stations, and student lockers. The systems approach is having an impact on construction outside education. The Lockheed Company in Marietta, Georgia, has employed SCSD components in erecting a building to house the engineering staff developing the giant C-5A military jet transport. **(271)**

WEBB, P. WHITNEY. Trends in school facilities. **Educational technology** 7:17, September 15, 1967. pp. 12-13.

A recent review of plans for university campus facilities revealed the following developments: (a) increasing use of new instructional aids and media; (b) expansion of knowledge and creation of new disciplines requiring flexible, changing educational programs; (c) an unending need for expansion; (d) a growing tendency to locate and divide facilities by function rather than by department; (e) a conscious development of circulation patterns and common spaces to encourage student-faculty contacts; (f) interest in planning facilities along streets and other urban-type spaces resulting from the concept of the campus as an urban organism; (g) increased advance planning to reflect particular philosophies and programs and to provide flexibility and expansion. The most dramatic architectural expression of educational developments is the single-structure or megastructure campus, designed to encourage dialogue between disciplines. New campus facilities must express student and faculty concern for the world and must take advantage of technological advances in materials, systems, and devices. **(272)**

WENTWORTH, JOHN W. A systems engineering approach to educational facilities. **Journal of the Society of Motion Picture and Television Engineers** 72:9, September 1963. pp. 659-663.

"The full benefits of modern technology can be realized more effectively in education if the skills of the systems engineer are permitted to guide the design of new devices. Some of the basic communications problems in education are identified, and guidelines for the development of improved technological aids are suggested. The possible influence of technology on teaching and learning opportunities is examined from an engineering point of view" (article summary). These factors are discussed under the following headings: (A) The Current Status of Educational Technology; (B) The Potential Roles of Technology in Education (concentration of learning resources, access to learning resources, activities to reinforce learning); (C) Technology and the Teaching Profession; (D) Educational Technology and the Individual Student (variable curriculum, variable content, variable time, variable sequence, variable format or method); (E) Opportunities and Obligations for the Educational Engineer. Material in this paper was adapted from a chapter in a report "A Study of Educational Technology as Applied to a College Learning Center," prepared by the author and his associates at RCA for Stephens College in Columbia, Missouri, under a subcontract from the U.S. Office of Education. **(273)**

WILKE, HUBERT. Audio-visual systems for large group instruction. **Architectural record**, October 1962. pp. 172-175.

Five factors of urgency (reported by a research project on instructional aids and media conducted by the School of Architecture of Rensselaer Polytechnic Institute and supported by the Educational Facilities Laboratories, Inc.) have recently been identified as creating the need for the development and application of modern technology if higher education is to meet its challenge. The sixteen more important principles evolving from the thesis that "optimum use of instructional aids and media requires new concepts of space types and design" are summarized in the conclusions of the RPI study: (1) an optimum viewing area will determine the most effective room shape; (2) stepped or sloped floors will provide the best viewing conditions in all rooms; (3) the actual capacity of a space is a function of the seating type and arrangement and applicable building code; (4) windows in the learning spaces are a liability; (5) all learning space should be air-conditioned; (6) proper acoustic treatment in all rooms and sound isolation between rooms are essential; (7) carefully planned special lighting is a prime essential to the proper functioning of these spaces; (8) from initial stage of design the mechanical, structural, acoustical, and lighting elements must be considered together as coordinated systems; (9) a conscious effort toward carefully designed color schemes in the rooms, and between rooms, is desirable; (10) in designing the spaces, aids and media should be considered with instructional methods as integrated systems; (11) the concept of a coordinated "display surface" or "teaching wall" should be encouraged; (12) whenever feasible, projection equipment should be centrally located in a projection center or area and should be remotely controlled by the instructor; (13) there are no overriding advantages of either front or rear projection to the exclusion of the other; (14) particularly in larger spaces, a single, large projected television image has advantages over a number of small monitor images scattered about; (15) the adjunct service spaces which support the functioning of a learning space require careful consideration; and (16) flexibility, a term with multiple meanings and implications for design, should be carefully analyzed and evaluated for each situation. **(274)**

LEARNING RESOURCE CENTERS

BARSON, JOHN, JOHN M. GORDON, JR., and W. RUSSELL HORNBAKER. Standard operating procedures for a learning resources center: a system for producing systems. **Audiovisual instruction** 10:5, May 1965. pp. 378-379.

The main objective of a learning resources center is the production of media-integrated courses or instructional systems. Its developmental procedures compose "a system to produce systems." An instructional system is a complex consisting of the following components: learners and a combination of instructors, materials, machines, and technicians, given certain inputs and designed to carry out a prescribed set of operations. This set of operations is devised and ordered so that the probability of attaining the output–specified behavioral changes in the components–is maximal. The newly devised developmental system at Michigan State University uses specially trained personnel and prescribes an optimal sequence for their decision making. The evaluation specialist aids the faculty member in identifying his objectives and in designing pre- and post-criterion instruments. Behavior specifications are turned over to an instructional strategist whose major decision area involves selecting among communication interaction patterns. The patterns chosen are those which best produce the desired behaviors. The media specialist's domain is thus narrowed to the selection of depictive forms of the teaching examples (facts, concepts, and principles) developed by the instructor. The recommendations of the media specialist are subject to empirical validation, or trial runs. This developmental system brings the cumulative know-how of professors and specialists to bear on instructional problems. **(275)**

BEGGS, DAVID W. and JAMES L. OLIVERO. A place out of space . . . the independent study carrel . . . and a variety of studies in Lakeview High School, Decatur, Illinois. **The bulletin of the National Association of Secondary School Principals** 46:270, January 1962. pp. 193-198.

The physical setting for independent study is discussed here, and a rationale is presented for a daily school schedule which makes lengthy and individualized activities possible, and for an Instructional Materials Center where diverse and abundant resources are housed. The discussion concerns itself specifically with how space can be effectively utilized, how a central feature–the independent study carrel–should be designed, and where it should be located in respect to the instructional materials center, conference rooms, and other facilities. Two types of study carrels and facilities are described. The study concludes with a summary of special staff studies conducted at the school under discussion.

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BRICK, E. MICHAEL. Learning centers: the key to personalized instruction. **Audiovisual instruction** 12:8, October 1967. pp. 786-792.

The Fountain Valley School District, after analyzing the problem of how to facilitate learning, chose to implement the "learning center concept." The learning center functions as an extension of the regular classroom and operates as a teaching and resource learning center for a cluster of six or eight teachers, depending on the building design. The prime effort of the program is to match students with necessary and appropriate materials, concepts, and people to provide for individualized instruction. The learning center is a resource center for diagnostic materials, electronic teaching devices, tape banks, test banks, science centers, rotating library systems, use and storage of audiovisual equipment, and reference and resource material. It is also a teaching center supervised by a coordinating teacher who conducts individual, small group, and cooperative teaching programs. Diagrams and pictures are included. **(277)**

GEERTSMA, ROBERT H. A student-oriented learning center in the biomedical sciences. **Journal of medical education** 42:7, July 1967. pp. 681-686.

This article reports on the establishment of a learning center by the University of Kansas Department of Medical Communication in the biomedical library. It will establish and test a means of systematically helping students in the biomedical sciences to plan, manage, and pursue their independent study more effectively. It will provide a place to study, multimedia learning materials, and the equipment necessary to use the learning materials. The future development of the learning center can be readily coordinated with developments of the medical center. **(278)**

The instructional materials center: philosophy, facilities, and design (entire issue). **Audiovisual instruction** 12:8, October 1967. 112 pp.

Articles in this issue are: Learning Centers: The Key to Personalized Instruction, by Michael Brick; The Learning Center at Brevard Junior College, by William Kenneth Cumming; The Making of a Media Center, by Dan Echols; Instructional Materials Center: The Hub of Learning, by Stanley D. Saltzman; IMS Production Facilities: Central Washington State College, by William D. Schmidt; Title III Serves Southwest Iowa, by William Horner, Ronald Curtis, Allen Nelson, Phillip Olive, and Robert Williams; Remodeling to Accommodate the Multimedia Library Concept, by W. T. Ward; Fredonia's Winter Garden Theatre: Vintage Setting for Modern AV Learning, by Lewis Saks; Implications of the Communications Process for School Plant Design, by David V. Guerin; Triangular Classrooms Promote AV Instructional Techniques, by Keith F. Martin; Barrington Middle School: The Ideal Audiovisual Environment, by Hal Burnett, The Multimedia Classroom: Planning and Operation, by Russell McDougal and James J. Thompson; We Designed and Constructed a Remote Control Console, by Hal J. Cress and Richard Stowe; "Please Mr. Architect . . .", by Terry Hess and Fred Mundt; Architecture and the College Library, by Robert B. Lorenz; A Rationale for Instructional Improvement Through Self-Help, by Robert Fite; Maintenance of Audiovisual Equipment: Are You Prepared for an Emergency?, by Peter O. A. Zeitner. **(279)**

JOHNSTON, ROY J. University of Miami Learning and Instructional Resources Center. **Audiovisual instruction** 11:2, February 1966. pp. 91-93.

The University of Miami Learning and Instructional Resources Center emphasizes the need for better methods of instruction, the need for the utilization of technological techniques and resources adaptable to the needs of higher education, and the urgency of having professional communications specialists adopt sufficient objectivity for identification with accepted educational values. The physical aspects of the Center and types of equipment are discussed. **(280)**

MATTHEW, ARCHIE and JIM POTTS. Individualize media? **Audiovisual instruction** 11:1, January 1966. pp. 42-44.

The Research and Material Center at Lake Oswago, Oregon, provides individualized media for a particular teacher. The center is staffed with certified teaching personnel, because they can develop materials that more readily meet the teaching objectives. The center makes transparencies, slides, models, mockups, filmstrips, charts, maps, ditto, tapes, and films that are not commercially available. A brief discussion of tape-teaching, the workshop, photography, and center-originated 8mm film is presented. **(281)**

TRUMP, J. LLOYD. Independent study centers—their relation to the central library. **The bulletin of the National Association of Secondary School Principals** 50:306, January 1966. pp. 45-51.

Five kinds of facilities are needed for comprehensive independent study. How separate these facilities become depends on the size of the school, but one fact is certain—successful independent study requires more than the library, and more than an added room with audiovisual aids. The five facilities are described and explained: the learning resources center; the library; the conference areas; the relaxation space; and the formal study room. Techniques of administration and organization are also discussed. **(282)**

MULTIMEDIA INSTRUCTION – RATIONALE

BRIGGS, LESLIE J., PEGGIE L. CAMPEAU, ROBERT M. GAGNÉ, and MARK A. MAY. **Instructional media: a procedure for the design of multi-media instruction, a critical review of research, and suggestions for future research.** Pittsburgh: American Institutes for Research, 1967. 176 pp.

The book consists of six chapters. Chapters One, The Problem and a Plan for a Solution, suggests problems that teachers face in choosing instructional media, recommended solutions to these problems, and procedures to be followed. Chapter Two, A Procedure for Choosing Media for Instruction, gives the steps in the procedure and a general account of the procedure. Chapter Three, An Illustration of the Analysis Procedure for a Group of Objectives from a Course in Elementary Science, gives the sources of the objectives for this analysis, an analysis of the sample set of objectives, and a discussion which includes the capabilities of the several media and the influence of the learner's prior knowledge. Chapter Four, Further Applications of the Procedure, suggests how the procedure might be applied to a programmed course in geography and geology. Chapter Five, Selective Review of Literature on Audiovisual Media of Instruction, covers reviews of research on television; motion pictures; programmed instruction; filmstrips, slides, transparencies, and other pictorial presentations; radio and recordings; three-dimensional models; and field trips. Limitations of current research and suggestions for future research on educational media are also discussed. Chapter Six, Summary, Conclusions, and Recommendations, completes the publication. A list of references includes books, review articles, instructional materials, and experimental studies. **(283)**

FRYE, ROY A. Hazards of media. **Audiovisual instruction** 11:7, September 1966. pp. 568, 570, 572.

This letter to the editor refers to Raymond Wyman's "A Critical Look at Multi-Media Rear-Screen Presentation Halls." It disagrees with Wyman's ideas, offering as rebuttal a list of hazards created by the designers of the more conventional media: it is almost impossible to use more than one, at the most two, media instruments in most college or public school classrooms; a projector requires a screen; with either system the teacher must arrange for material ahead of time; and operation of the projector itself is a distraction. Presentation halls, a step toward sophisticated use of classroom media, seem to be forerunners of a similar improvement in classroom design. Further development of these concepts may achieve some significant and worthwhile objectives by ending the need to train teachers to use many kinds of complex hardware, by relieving the teacher of procurement and programming duties, by preplanning, and by achieving simplicity. **(284)**

GALLEGOS, ARNOLD M. "Total" instructional systems–a new learning opportunity. **Educational technology** 7:13, July 15, 1967. pp. 1-5.

The instructional systems referred to in this article are primarily multi-media in nature. A new approach to media utilization and development is being followed in that the media are developed after the behavioral objectives in the subject area have been identified. An example of an "on site" utilization of a recently developed instructional system in Anatone High School (in Washington State) is reported. The areas selected for study were speech and industrial arts; descriptions of both are included. The future importance of this type of learning opportunity is emphasized. **(285)**

GEORGIADY, NICHOLAS P., LOUIS G. ROMANO, and WALTER A. WITTICH. Increased learning through the multimedia approach. **Audiovisual instruction** 12:3, March 1967. pp. 250-251.

To examine the effectiveness of the multimedia approach, the authors have carried on extensive research in a number of classes. This research effort is described as the Shorewood and Whitefish Bay Public Schools Multimedia Learning Investigation. The research was designed to identify the effects on learning of the use of several audiovisual materials, under such circumstances as would permit the use of these materials to reinforce their individual learning effects, as measured by vocabulary changes occurring among elementary and junior high school science and social studies students. Studies are briefly discussed, with accompanying graphs. **(286)**

McVEY, GERALD F. Multimedia instructional laboratory. **Audiovisual instruction** 11:2, February 1966. pp. 80-85.

The University of Wisconsin's Multimedia Instructional Laboratory (MIL) was set up to (1) improve the quality of large-group instruction at the university level through the use of an automated system of audiovisual equipment and (2) provide an instructional laboratory in which the effect of multiscreen, rear-projection techniques on learning could be studied. The major activities of the laboratory include producing automated lectures; conducting research projects related to variations in material, lecture production, and in the learning situation; and research on the effects of unique or cross-media utilization and analysis of student reaction to these. The development and use of an automated lecture is discussed. This use of multimedia is advantageous, because it offers more control over the presentation of material, the program can be paced according to needs, and the random-access selection system makes combinations of visuals available. Flexibility of program design and the control of ambient lighting are also advantages. Future plans of the laboratory are described, and facts about its operation and costs are outlined. **(287)**

SMITH, M. DANIEL, MORTON SCHAGRIN and L. EUGENE POORMAN. Multimedia systems: a review and report of a pilot project. **AV communcation review** 15:4, Winter 1967. pp. 345-369.

After reviewing related articles and reports of research, this article reports on a multimedia system pilot project which initially set out to explore how various media can be used to assist a teacher, the implications of such a system for the role of the teacher, the effectiveness of media, and whether research in learning can be applied productively to curriculum development in its early stages. Answers were sought by designing, developing, field testing, and evaluating a sequenced unit involving all media for which materials have been produced by Project Physics, including limited-objective programmed texts and commercially available films. The unit is discussed in detail; several figures give explanatory data. Relationships between the pilot project and related research reviewed previously are then sought. There are suggestions for future directions for multimedia research and development. References are included. **(288)**

WYMAN, RAYMOND. A critical look at multimedia rear-screen presentation halls. **Audiovisual instruction** 11:5, May 1966. pp. 373-374.

If the following nine conditions can be met, a multimedia rear-screen installation can help to make effective presentations available to large numbers of students: (1) material is constructed, selected, or adapted ahead of time; (2) a technical assistant is available to help in constructing, adapting, duplicating, and finding the materials to be used; (3) a rehearsal is scheduled for the teacher and technician and perhaps another professional person from the teacher's department or audiovisual center; (4) a script or comprehensive run-down sheets are prepared and copies made for all concerned; (5) space, equipment, and funds are allocated; (6) comparisons are made among the various images (at least some of the time); (7) The presentation is custom-tailored to a group; (8) extemporaneous material is seldom used; (9) the instructor feels at home with technology. If these conditions cannot be met, it may be wiser to use human and material resources to improve presentations in most classrooms and lecture halls by expanding use of ordinary projectors, television, recorders, and screens, and using commercial and locally produced materials and technical assistance as needed. **(289)**

MULTIMEDIA FACILITIES AND EQUIPMENT

Automated multiple projection center. **Educational technology** 6:6, March 30, 1966. pp. 20-21.

A mobile, fully-automated multiple projection control center, suitable for school audiovisual installation, is announced. Complete wide-screen presentations can be programmed for punch-tape operation, or the system can be operated manually at the control console or from a remote location. *(ASTD)* **(290)**

HUBBARD, RICHARD D. Telemation (AV automatically controlled). **Audiovisual instruction** 6:9, November 1961. pp. 437-439.

The University of Wisconsin is conducting a project involving automatic control of audiovisual materials in an integrated system. The focal point of the system is the tri-part screen used to present multiple visuals adjacent to one another, thus displaying related segments of information and visually accenting important relationships. Moreover, the whole system can be automatically controlled through a computer and by employing tape recorders; this type of programming permits several lecturers to share their competencies in a single course. Thus the system lends itself to team teaching. Moreover, the system was devised to make large-group lectures as effective as possible, and it has been shown that a tape lecture of 50 minutes can be condensed to 20 telemation minutes with no loss of material or loss of learning by students. **(291)**

GASSMAN, MORTON C., ALAN C. GREEN, and WILLIAM L. MILLARD. Experimental instructional facilities and systems for college teaching and instructional research. **Journal of the Society of Motion Picture and Television Engineers** 72:9, September 1963. pp. 668-673.

This article reports the experience of Rensselaer Polytechnic Institute with its experimental instructional facilities and systems. Three summary statements are made: (1) Prototype instructional facilities provide an opportunity for an educational institution to work out, in a realistic way, the solutions to complex and interrelated instructional problems involving the combined application of educational theory, instructional methodology, communication media, classroom design, and the technology of classroom instrumentation. (2) Classroom systems of the multimedia type encourage teachers to exploit and accept new ways of teaching, develop new teaching materials, and participate in those reserach activities which directly affect the design of facilities in which they themselves expect to teach. (3) Experimentation and research concerned with the instrumentation for instructional facilities must be increased. **(292)**

INGRAM, GEORGE E. Teacher preparation through multimedia facilities. **Audiovisual instruction** 12:10, December 1967. pp. 1054-1056.

In the College of Education in The University of Bridgeport, the faculty have just started to use their recently completed multi-media facilities. They are attempting to prove that more can be accomplished in the training of prospective teachers or of any other students when a wide variety of communications media is employed in everyday instructional situations. The multimedia complex consists of three suites of two rooms each, one a classroom and one a combination viewing booth-storage area adjacent to the classroom. Two of the classrooms are seminar-size while the third is a large-group lecture hall. Among equipment in the room are remote-controlled, rear-projection and an audio playback system in the rear of the lecture hall, a video and audio distribution system, closed-circuit television, chalkboard and bulletin board facilities, ceiling microphones, a classroom screen, the intercom phone, an outlet for television origination and reception, videotape recorders, television receivers, and television cameras. **(293)**

McCLENDON, PAUL I. An integrated multimedia teacher's desk. **Audiovisual instruction** 12:5, May 1967. pp. 495-496.

A self-contained multimedia desk is suggested as a practical approach to overcoming the problems of trying to be a creative teacher when a teaching station is simply an unwieldy and nonfunctional desk and chalkboards, bulletin boards, and maps are the only permanent instructional media. The proposed unit will also improve the total instructional climate. Oral Roberts University has used these machines with excellent results. Each console has a self-storing folding lectern, an overhead transparency projector, a two-inch square slide projector, and an audiotape recorder. The design pattern is well integrated to permit maximum fluidity in use and transition between media components both within the teacher's desk and extraneous to it. The mechanics of the unit are described. **(294)**

McDOUGAL, RUSSELL, and JAMES J. THOMPSON. The multimedia classroom: planning and operation. **Audiovisual instruction** 12:8, October 1967. pp. 827-829.

The design of a multimedia classroom at Indiana State University is illustrated pictorially. The dimensions and seating capacity of the room are given, as well as the positioning of seats, screens, and entrances. The equipment used includes slide projectors, tape decks, motion picture projector, filmstrip projectors, AM and FM radio, overhead projector, and wireless microphone. Three modes of equipment control are suggested: (1) complete telemated sequencing and activating by means of a moving teleprompter script; (2) semiautomatic control by means of a single pushbutton operated by the instructor; and (3) direct control of each individual piece of equipment by a corresponding button or switch on the instructor lectern. The facilities of the control room are described. **(295)**

New audio-visual systems. **Educational technology** 7:16, August 30, 1967. pp. 11-13.

Development of a new audiovisual educational system that probably will be sold to schools for under $400 is announced. The system consists of an electronic unit resembling a small television set, a color filmslide, and a record synchronized with the slide. Five buttons enable the student to select correct answers and advance the lesson; a wrong answer causes the machine to repeat the questions or instruction. By utilizing the system, the teacher can diagnose each student's needs, prescribe the appropriate instruction, teach each student individually, test each student's progress, and keep a permanent record of each student's progress. **(296)**

TROW, WILLIAM H., and EDGAR A. SMITH. **Design considerations influencing the size and cost of optical components in auto-instructional devices.** Wright-Patterson AFB, Ohio: Behavioral Sciences Laboratory, May 1965. 34 pp.

The investigation of the optical components of rear-projection auto-instructional equipment provides a basis for design consideration. Recent developments in lens and reflector fabrication do not yet permit costs below those of conventional equipment. Room illumination level, audience size, and the contrast of films strongly influence the design of a rear-projection device. Some principles and practices for rear projection are suggested and the relationships among the major factors of screen performance are expressed in mathematical terms. Illustrations, tables, references, and a bibliography are included. **(297)**

TROW, WILLIAM H., and EDGAR A. SMITH. **An examination of the feasibility of modular design for audiovisual autoinstructional equipment.** Wright-Patterson AFB, Ohio: Behavioral Sciences Laboratory, May 1965. 28 pp.

This study explores the implications of modular design of audiovisual autoinstructional equipment. One section explores some of the functional requirements of audiovisual autoinstructional devices in terms of their utilization as performance aids, instructional aids, and research vehicles. Another section considers the application of modular design concepts to obtain these functional requirements and presents a general description of a system of modules. Some conclusions are drawn: (1) a modular system would provide greater flexibility of equipment; (2) while offering greater utilization potential, modulization also offers major economies; and (3) this combination could provide considerable impetus to expansion in the application of autoinstructional training techniques. Proposed basic modules include: (1) a slide-changer module; (2) a filmstrip module; (3) a family of screen modules; (4) a family of light source modules; (5) an audio record and playback module; (6) three signal pulsing modules; (7) a multiple-choice response module; and (8) a write-in response module. Illustrations, tables, an appendix, and references are included. **(298)**

U. S. ARMY AVIATION SCHOOL, FORT RUCKER, ALABAMA. **Multiple-screen instruction** (by John H. Krickel). Fort Rucker, Ala.: the School, February 1964. 16 pp.

A guide for personnel planning instruction with multiple-screen projection for the first time is presented. Rules to follow in planning are given and techniques for using multiple screens are discussed and illustrated under the following headings: (1) Trainers and Actual Objects; (2) Student Note Taking; (3) Transitions; (4) Examples; (5) Emphasis Shift; (6) Movies-Slides Used Together; (7) Relation of a Part to the Whole; (8) Progression; (9) Experimental Techniques. Multiple-screen presentations allow sequential increments of information to be presented to the student in smaller visual units, a type of presentation which is superior to either spoken or written material alone. Student motivation can be increased through skillful instructor use of progressions on the screen. **(299)**

AUTO-INSTRUCTIONAL LABORATORIES

BETHRENS, JOHN H., and BUD G. HARMON. Economical and efficient auto-tutorial references. **Audiovisual instruction** 12:5, May 1967. pp. 450-452.

Auto-tutorial carrels that could combine audio and visual media designed by the University of Illinois' College of Agriculture are described. Hardware and software required and building materials for the carrels, such as wiring and wood, are enumerated. Several figures illustrate the positioning and spacing of these carrels. The advantages of this system are one-time preparation and individual study. A more thorough presentation of subject matter and the ability to make corrections before presenting the material are other assets. Students can pace themselves; demonstrative material can be prepared once and presented repeatedly. **(300)**

CURL, DAVID H. Auto-instructional laboratories for teaching a-v skills: University of Connecticut slide sets. **Audiovisual instruction** 12:5, May 1967. p 480.

A self-instructional audiovisual laboratory developed during 1963-64 at the University has been installed. Basic instructional materials for this laboratory were carefully prepared sets of captioned 2" x 2" slides supplemented by 8mm cartridge films. The method has proved to be both economical and instructionally sound. Additional programs on graphics production and newer models of audiovisual equipment are being developed in a graduate division at the University of Connecticut. The author reports that over sixty colleges and universities and school systems have purchased the "basic seven" Connecticut slide sets since they were put on the market the previous year. The basic instruments are named and the purchase source is given. **(301)**

CURL, DAVID H. Western Michigan University audio-tutorial. **Audiovisual instruction** 12:5, May 1967. p. 480.

The self-instructional audiovisual laboratory being prepared at Western Michigan University is described briefly. An illustration designates the various components making up the carrel such as tape cartridge playback units, rear projection units, practice reels,and equipment to be studied. **(302)**

GERLACH, VERNON S. Self-instruction in the AV laboratory. **Audiovisual instruction** 11:2, February 1966. pp.96-97.

A self-instructional laboratory for the basic audiovisual education course at Arizona State University is described. The lab consists of an 8mm cartridged film projector; a rear-projection screen; a library of silent films from ½-minute to 4-minutes long; a dittoed manual describing objectives, terminal behavior, and materials needed; and a three-student lab desk. **(303)**

MACKLIN, PATRICIA A. Auto-instructional laboratories for teaching a-v skills: Ohio State's media lab. **Audiovisual instruction** 12:5, May 1967. pp. 484-487.

The Educational Media Laboratory at Ohio State University is a part of the Teaching Aids Laboratory, Telecommunications Center, and was set up in 1964 to provide skills, techniques, resources, and facilities for persons preparing for teaching tasks who do not have time to take professional courses in media. Programmed instruction is the "cornerstone" of the system, and a self-instructional approach is assured. The laboratory displays media for information, instruction, research, inspection, evaluation, and production for the use of faculty, staff, and students at the University. The four basic parts of the library are: an experimental classroom, an equipment study lab, a production area, and a resource area. Each area is described. A chart is given for two years of the hours open, individuals served, visitors, and students receiving direct instructional benefit from lab services. The use of the laboratory, which has no specific hours, is voluntary. **(304)**

ROTHENBERG, SIDNEY. Auto-instructional laboratories for teaching a-v skills: instruction at Syracuse. **Audiovisual instruction** 12:5, May 1967. pp. 481-482.

"Established in 1962, . . . the Self-Instruction Program at Syracuse University has become an integral part of the University's rapidly growing Center for Instructional Communications, enabling more than 300 students each year to acquire competency, on their own time and at their own pace, in operating standard audiovisual equipment." Basically, the laboratory facilities consist of four student stations (which provide space for the storage and operation of equipment) with illustrated manuals, tape recorders, phonographs, slide projectors with filmstrip adapters, motion picture projectors, with films, tapes, filmstrips, and slide sets. Headphones allow the four units to be used simultaneously in one room. The article describes the step-by-step stages for using the various teaching devices, a process which should take a total of four hours and is followed by a time-error competency test. The history of the project at Syracuse is recounted. Followup tests seem to indicate that students who have used this learning method have good retention of the information. **(305)**

SMITH, KARL V. Audiovisumatic teaching: a new dimension in education and research. **AV communication review** 8:3, May-June 1960. pp. 85-103.

This article describes a new method of instruction–audiovisumatic teaching. This method uses the interrelated recording and playback of illustrated lectures with student control of programmed tutoring material. When adapted to self-study, the presentation of questions can be controlled by the answers given by the students. A magnetic tape recorder with built-in electronic controls which operate a filmstrip or slide projector is the device used for this method of teaching. There is a device which stops the machine when a question has been asked and starts it again when the correct answer has been marked. The machine can also direct the student to write an answer to a short essay question. The machine then summarizes the correct answer when the student finishes writing and punches his answer sheet for a second question. The research reported in this study was sponsored by the National Science Foundation and the University of Wisconsin. After the classes taught in this method, an attitude survey was conducted. Neither group of students listed as many negative factors as positive ones. Ninety-one percent in one study of 45 students of industrial psychology and 78 percent in a class of 90 students in introductory psychology indicated that they would like to use the machine sometime in class. It is indicated that audiovisumatic instruction would be suitable for use in industrial training. *(ASTD)* **(306)**

Teaching science without lectures. **Educational technology** 7:1, January 15, 1967. pp. 16-18.

The audio-tutorial system used to teach general biology, mechanical engineering, and physics at Michigan Technological Institute is described. This system provides the components for teaching a course through automatic, audiovisual devices. Students listen to recorded lectures at their convenience; experiment instructions are reduced to audio and/or visual reproduction. The advantages of this system are that the course is available at the student's convenience, students work as long as they want to, the better student can move rapidly ahead and slower students have the opportunity to repeat the lesson, the method is flexible, and the quality of the lecture can be increased by editing. Critics claim that the method is impersonal; however, the instructor has more free time for working with individual students this way than when lecturing in an auditorium. **(307)**

DIAL ACCESS RETRIEVAL SYSTEMS

ARNOFF, MARY S. Nova's dial access retrieval system. **Audiovisual instruction** 12:5, May 1967. pp. 470-471.

The dial access retrieval system at Nova High School, Fort Lauderdale, Florida, consists of two basic components: the learning laboratory and the 24 machines available for other kinds of recording. The learning laboratory has 50 student stations equipped with headsets, boom mikes, volume controls, and mike on-off switches. Each station is controlled from the teacher console, which has one four-position switch for each student position, allowing selection of four different programs for each student. In the TV control center are two equipment racks, each containing 12 tape decks. These machines are reel-to-reel cartridge units which automatically start when a student dials. The units play to the end, rewind, and stop at the beginning, ready for a new cue from a student position. **(308)**

GRABOW, WESLEY J. E. Dial retrieval for individual instruction. **Audiovisual instruction** 11:6, June-July 1966. pp. 446-447.

The session on dial access information retrieval systems was one of the most popular sessions at the 1966 DAVI Convention. Dial access is an information storage and retrieval system that has been given considerable study and discussion recently. Three papers were presented at the session: The Cost Analysis of Dial Access Information Retrieval Systems for Education, by D. K. Stewart; Technical Aspects of the West Hartford Dial Retrieval System, by William Humphrey; and Developing Materials for a Dial Access System, by Thomas Sobal. **(309)**

McCLENDON, PAUL I. Oral Roberts University's dial access audio-video system. **Audiovisual instruction** 12:5, May 1967. pp. 464-466.

A dial access system currently in use at Oral Roberts University in Tulsa, Oklahoma is basically designed to provide for the following: (1) production of original audio and video programmed materials, as well as the correlation of existing materials; (2) storage of audio and video materials on source origination equipment; (3) distribution of the stored materials to remote station locations; (4) retrieval by random dial access and audiovisual display of any stored materials from any remote station under 100 percent use conditions. Preliminary results indicate some of the values from the system include high student motivation; accommodation of individual student differences for rate, depth, and scope of learning; convenience of preview and review; ease of updating courses with latest current materials; and increased opportunity for application and integration. **(310)**

NABER, RICHARD H. DAIRS in Illinois today. **Educational technology** 7:3, February 15, 1967. pp. 12-13.

Dial access information retrieval systems (DAIRS) are being installed in various school districts in Illinois. Using a telephone, a teacher or student dials a communication center where information is stored on coded audio or video tapes. Students may work at their own pace, study lessons they missed while absent, further study in a particular area of interest, or drill in certain subject areas that permit it. **(311)**

NATIONAL EDUCATION ASSOCIATION, DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **Selected remote access installations 1967.** Washington, D.C.: National Education Association, 1967. Mimeo. 1 p.

The names and addresses of locations for 15 remote access installations are listed here. **(312)**

NORTH, STAFFORD. Oklahoma Christian College's dial access retrieval system. **Audiovisual instruction** 12:2, May 1967. pp. 468-469.

Oklahoma Christian College has the largest dial access system used in instruction; 870 positions have access to 136 program sources. Each of the 850 students enrolled has a carrel of his own. The tape racks, headsets, and other equipment are described. The software, prepared by faculty members, consists of 16 tape-recorded lectures with a workbook. Some means which have led to an active program of materials development include: (1) annual workshops led by outstanding experts; (2) provision of release time for faculty members when working on development material; (3) provision for traveling funds, consultants, and reviewing materials for faculty members developing their own material. Original momentum was provided by allowing faculty to work on materials before the opening of the learning center. **(313)**

OFIESH, GABRIEL D. **Dial access information retrieval systems: guidelines handbook for educators** (limited edition). Washington, D.C.: Catholic University of America, School of Education, Center for Educational Technology, 1968. 152 pp.

This is a compilation of information gathered under the direction of Dr. Ofiesh, Director of the Center for Education Technology, during a state-of-the-art study of dial access information retrieval systems conducted for the U.S. Office of Education. Part and chapter headings indicate content and organization: I. The State of the Art–(A) Description: System Concept and Basic System Components, (B) Rationale, (C) Historical Background, (D) State of the Art Profile, (E) The Future; II. Guidelines–(A) For Administrators, (B) For Teachers, (C) For Librarians, (D) For Technical Personnel; III. Appendixes–(A) Operational Systems in the U.S., (B) Questionnaire Data and Analysis, (C) Software Sources, (D) Equipment: Sources and Specifications, (E) Glossary, (F) Bibliography. [Located too late for indexing.]

Scheduled access vs. random access. **Dial-access information retrieval systems for education; newsletter** (Center for the Creative Application of Technology to Education, P. O. Box 3008, College Station, Texas, 77840). Special issue #7, May 1967. p. 2.

Suggestions are offered for persons considering design, installation, and expansion of dial-access systems. Definitions of four terms specify differences in capabilities of various types of dial-access systems: scheduled access, non-private limited random access, private limited random access, and private random access. Advantages of each variation are outlined to aid in decision-making so that costly later expansions may be avoided. **(314)**

STEWART, DONALD K. The cost analysis of dial access information retrieval systems. **Audiovisual instruction** 12:5, May 1967. pp. 430-434, 492-494.

Dial access information retrieval systems are broadly defined for the purposes of this article as systems involving two or more receivers (students) who are able to select and receive one of two or more stored programs (audio and/or visual) from a source which is at a location different from that of the receivers, the transmission from the source to the receiver being wholly or in part electronic. The further explanation of DAIRS is subdivided into the functional parts of the system: location of the receiving or student stations; environment of the receiving stations; program selection mode; program transmission mode; source location; connecting the receivers to the programs; stored programs; and other uses of a DAIRS, among which are student retrieval of daily announcements, students' dialing in for a lecture, and computer assistance in problem solving. After a general discussion of planning for DAIRS, specific questions are cited and answered for a cost analysis of DAIRS software and hardware. A list of companies which sell and install dial access equipment is included. Three appendices are entitled: Switching Systems, Individual Access, and Program Storage Devices. **(315)**

WISNIEWSKI, RAY. Grand Valley State College's dial access retrieval system. **Audiovisual instruction** 12:5, May 1967. pp. 472-477.

The dial access integrated audio-video system at Grand Valley State College is described and accompanied by illustrations. One hundred thirty-one of the 256 carrels are equipped for reception of closed- and open-circuit television. One hundred seven have access to 120 audio program sources; 24 of these function as a language laboratory. The equipment is described in detail. **(316)**

SOME ADMINISTRATIVE FACTORS

BARSON, JOHN. Heuristics of instructional systems development: a team report. **Audiovisual instruction** 12:6, June-July 1967. pp. 613-614.

Heuristics are the practical steps that work in the design of instruction and implementation of newer media. The report is based on an NDEA Title VII-B investigation of media at four universities. The plan uses instructional development assistance to faculty members in selected courses. Aid is provided by an instructional specialist, media specialist, and evaluation specialist. The final product of the study will be a summary document which (1) describes the major steps taken by the demonstration institutions in implementing an approach to instructional planning; (2) contains an improved form of the development system; (3) includes diffusion data; (4) offers a prescription for the curricula of substantive degree programs for systems development specialists; and (5) presents comparative cost data for instructional systems development. Each of the four systems is discussed individually. Nine major and seven minor heuristic steps observed by the evaluation teams are listed. **(317)**

BARSON, JOHN. **A procedural and cost analysis study of media in instructional systems development, part a.** East Lansing, Mich.: Michigan State University, September 1, 1965. 135 pp.

The specific objectives of the study were: (1) to do a descriptive analysis and evaluation of instructional development activities at Michigan State University during the period 1963-1965; (2) to devise methods of measuring costs associated with instructional systems development and principles of sound budgetary planning for the use of educational media in university instruction; (3) to develop hypothetical models of instructional systems development procedures and their relative costs; and (4) to prepare descriptive reports of the above materials for use by other institutions of higher learning. Findings related to objective (2) are presented in a separate report. The study is divided into six chapters: Introduction, Methods, Results, Discussion, Conclusions and Recommendations, and Summary. A bibliography is included. **(318)**

FARIS, GENE and JOHN A. MOLDSTAD. **Improving the learning environment: a study on the local preparation of visual instructional materials.** Washington: U.S. Govt. Print. Off., 1963. 148 pp.

Offered is a guide prepared to assist school administrators and audiovisual supervisors in the initiation and expansion of programs for local production of visual instructional materials. It reports on the national status of local production programs developed to serve in individual school buildings, school systems, and public school educational television stations, and provides case study reports on schools underway with outstanding programs. The graphic and photographic techniques used in preparing the layout and illustrations are local production techniques provided for in the suggested program. Chapter titles are: I. The Role of Local Production in the Improvement of Instruction; II. National Survey of Local Production Programs; III. Case Studies of Outstanding Programs; IV. Teacher Opinions Concerning Local Production; and V. Specific Recommendations for Initiating and Expanding Local Production Programs (Objectives of a Local Production Program; Basic Components of a Local Production Program; An Organizational Pattern for a Local Production Program). A bibliography is included. **(319)**

FARIS, GENE and JOHN A. MOLDSTAD. **Organizing a program for creative instructional materials.** Bloomington, Ind.: Indiana University, Bureau of Educational Studies and Testing, 1966. 52 pp.

Ways in which audiovisual material can support instructional activity are discussed. Tables of materials and facilities and a bibliography of relevant books and films are included. *(USCSC 1, edited)* **(320)**

FARIS, GENE and MENDEL SHERMAN. **Quantitative standards for audiovisual personnel, equipment, and materials in elementary, secondary, and higher education.** Washington, D.C.: National Education Association, Department of Audiovisual Instruction, January 1966. 12 pp.

The standards were developed by the authors at the Audiovisual Center, Indiana University, as part of a study to formulate quantitative guidelines for the audiovisual communications field (conducted under the auspices of the United States Office of Education, National Defense Act, Title VII, Part B Program). For each of the categories of educational institutions, specified quantities of materials, equipment, and budget, and statements related to personnel, are listed in columns designated as "basic" (specifications for a functioning program in a school) and "advanced." Specifications are grouped under the following headings in each educational category: Personnel Guidelines; Materials Guidelines–Basic and Advanced; Materials Budget; Equipment Budget; Equipment Guidelines–Basic and Advanced. **(321)**

FARRAR, W. W. (ed.). Media in schools–a handbook for teachers and administrators. **Educational resources and techniques**, special issue, November 1967. 104 pp.

The issue is a report of a project conducted by twenty-seven members of the Texas Audio-Visual Education Association. The topics covered deal with problems and aspects of implementing instructional media programs in schools. The project's primary purpose was to help media practitioners develop better media programs for schools, and the report offers practical suggestions to librarians, media specialists, building level media coordinators, and other personnel responsible for preparing, using, and organizing media. There are thirty-five articles divided into seven sections: Personnel, In-Service Education, Materials, Equipment, Facilities, Budget and Public Relations. The articles are illustrated by photographs, drawings, and diagrams. **(322)**

KNIRK, FREDERICK G. An analysis of certain time and cost measures involved in the use of instructional technology systems (unpublished doctoral dissertation). **Dissertation abstracts** 26:9, March 1966. pp. 5294-5295.

The purpose of this study was to determine the instructional input requirements for instructional media systems as measured by their time and cost requirements. Studies using instructional media for fifty percent or more of the instructional time were used if they included the time and/or cost requirements for the instructional medium. When possible, the input measures were related with the output measurements as indicated by an assessment of the accomplishment of the educational objectives by the instructional system. The assessment was performed by using criterion test measures, teacher attitude measures, and student attitude measures. Other variables such as the subject-area, grade level of the students, production location (local-commercial), research sponsor, and the number of students in the experimental group were examined and related to the input measures whenever this information was available. These input measures were so presented that they could be used to compare the input requirements for the various media. The ability to compare the costs of the time requirements of instructional components or subsystems facilitates an examination of instruction. The comparison of instructional sybsystems may result in the substitution of one component for another. The studies investigating the costs of various instructional media have not been conclusive in determining the economic expenditure trends involved in using instructional media, but they have provided markers so the general expenditure ranges can be located and used to suggest the limits which can be expected by educators designing similar instructional systems. There were few research reports which indicated instructional media-based systems required more time than conventional systems. As a result, it appears that the concept of instructional media substitution is feasible as far as the time requirements for instruction-learning are concerned (author's abstract). [Located too late for indexing]

WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION. **Elements of an effective audiovisual program; a handbook for Wisconsin educators** (Robert C. Wheeler, Project Coordinator). Racine, Wis.: The Department of Public Instruction, 1966. 56 pp.

In order for schools to have good audiovisual programs, the school policy-makers, administrators, and the entire teaching staff should all be committed to achieve the best possible teaching-learning environment. The staff members must be devoted to implementing the teaching-learning situation with audiovisual philosophy, materials, and techniques. Facilities must encourage and expedite effective use of audiovisual materials. Materials and equipment must be provided in sufficient quantity, quality, and at the right time and place. A regular appropriation for the audiovisual program in the school budget is desirable. Inservice training must be provided whereby teachers can develop a desire and ability to improve teaching-learning situations. Evaluation must be continuous. Bibliographies of books, pamphlets, films, and filmstrips are listed at the end of each chapter. Five appendices include selecting the correct screen size, an evaluative checklist, a quantitative guideline for the audiovisual communications field, the Wisconsin administrative code, and a suggested bibliography which may serve as a guide for making selections for an audiovisual professional library. **(323)**

GUIDES, OTHER SOURCES

The audio-visual membership directory. Fairfax, Va.: National Audio-Visual Association, Inc., 1967. 39 pp.

The directory is divided into the following sections: (1) audiovisual dealers, listed by state and town; (2) audiovisual manufacturers' representatives; (3) audiovisual manufacturers, producers, and trade publications, listed alphabetically; (4) audiovisual dealers, manufacturers, and producers of the National Audio-Visual Association of Canada. **(324)**

Instructional materials for teaching audio-visual courses: an annotated list of motion pictures, kinescopes, filmstrips, slidesets, recordings, and tapes. Syracuse, N.Y.: Syracuse University Audiovisual Center, March 1, 1961. 74 pp.

An annotated list of all available audiovisual materials (at time of publication) concerning audiovisual communication, with a guide to their easiest access throughout the country, is presented. Contents are: I. General Theory of Instructional Communication; II. Graphic Materials; III. Display Materials; IV. Non-Projected Materials; V. Projected Materials; VI. Broadcast and Recorded Materials; VII. Class Activities; VIII. Photography; IX. Administration; X. Specialized Areas. The listed materials cover theory, description, utilization, production, research and appreciation. Entries include all pertinent information about the materials, including sale or rental price when applicable, and a brief description of contents. **(325)**

Kodak publications about the planning, producing, and use of audio-visual materials. Rochester, N.Y.: Eastman Kodak Company, n.d. 1 p.

Listed are the titles, pamphlet code numbers, and prices of thirty-one selected publications from Kodak: Sources of Motion Picture Services and Equipment 16mm, 8mm, and Super 8; Getting the Most Out of Your 8mm Films; Kodak 16mm Movie Films; Handling Super 8 Movie Film; Basic Copying; Photomicrography with Simple Cameras; Planning a Photo Essay; Kodak Sonotrack-Coating Service; The Handling, Repair, and Storage of 16 mm Films; Black-and-White Transparencies with Panatomic-X Film (35mm); Index to Kodak Technical Information; Photomacrography; Some Sources of 2 x 2-Inch Color Slides; Audiovisual Projection; Legibility Standards for Projected Material; Making Black-and-White Transparencies for Overhead Projection; Sources of Motion Pictures and Filmstrips; Selected References on Audiovisual Publications; Audiovisual Planning Equipment: Artwork Size Standards for Projected Visuals; Planning and Producing Visual Aids; Effective Lecture Slides; Easy Slide-making with a Verifax Copier (a set of templates); Wide-Screen and Multiple-Screen Presentations; Projection Distance Tables for Kodak Carousel Projectors; Comparison of Regular 8 and Super 8 Formats; Slides with Motion; The Multi-Projector Control Center; Your Programs from Kodak; Visuals Are a Language; Audiovisual Notes from Kodak. Instructions for ordering up to five free samples, ordering more than five different pieces, and placing bulk orders are included. **(326)**

NATIONAL EDUCATION ASSOCIATION, DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **DAVI membership directory and data book, 1967-1968.** Washington, D.C.: National Education Association, 1967. 179 pp.

For DAVI members, this directory is a guide to more productive professional relationships at home and in all parts of the country. For non-members, it represents a rich resource of professional competence and a description of the many-faceted concerns of DAVI. Included in this directory are the DAVI Board of Directors, their positions and addresses; delegate assembly in individual states; committees and commissions of DAVI 1967-1968; editorial boards (AV), and affiliated organizations (media, publications, etc.). A listing of DAVI membership is alphabetized first by states and then by members' names within each state (positions and addresses of members are also included). The listing (ordered in the same manner as in the states) continues for U.S. Territories and foreign countries. The DAVI Constitution is included at the end of the book. **(327)**

NATIONAL EDUCATION ASSOCIATION, DEPARTMENT OF AUDIOVISUAL INSTRUCTION. **Sources of information on instructional materials.** Washington, D.C.: National Education Association, September 1966. Mimeo. 4 pp.

Included in the "evaluative lists" section of this bibliography are sources of evaluative reviews for films, filmstrips, and recordings. Included in the "annotated lists" section are general guides to instructional materials; sources of information on films and filmstrips; programmed instruction, slides and pictures; television; recordings; and free and inexpensive materials. A list of six periodicals listing current materials concludes this bibliography. **(328)**

OSWALD, IDA. **An annotated bibliography on audiovisual instruction in professional education.** New York: Council on Social Work Education, 1966. 61 pp.

Though designed primarily for use by social work educators, this bibliography may be of interest to educators in other professions. The references are grouped in three sections: I. Social Work Literature; II. Literature from Related Professional Fields; III. General References, including bibliographies, directories, and guides. Sections I and II are further subdivided: (A) Teaching Uses; (B) Research Uses; (C) Conceptual and Technical Aspects of Production and Use. In all sections, emphasis is on instructional television and audio tapes. **(329)**

RUFSVOLD, MARGARET I. Guides to the selection and evaluation of newer educational media. **Audiovisual Instruction** 12:1, January 1967. pp. 10-15.

This article includes a list of guides indicative of the variety and number of indexes, catalogs, and reviewing services which are currently available and which have been published during the last ten years. Criteria for inclusion or exclusion of catalogs and lists are the same as those followed in *Guides to Newer Educational Media* (by the author), with the addition of programmed instruction. This list is arranged alphabetically according to titles. **(330)**

RUFSVOLD, MARGARET I. and CAROLYN GUSS. **Guides to newer educational media.** 2nd edition. Chicago: American Library Association, 1967. 62 pp.

A revision of the 1961 edition, this publication is a guide to catalogs and lists, services of professional organizations, and specialized periodicals which systematically provide information on newer educational media. "Newer educational media," as used here means materials which require special equipment or physical facilities in order to use them, including 16mm motion pictures; 35mm filmstrips; 2x2-inch and 3¼x4-inch slides; kinescopes and videotapes; phonodiscs and phonotapes; transparencies; and programmed instruction materials. The listing is comprehensive rather than selective, and the annotations are descriptive rather than evaluative. The catalogs are: (1) publications appearing between January 1, 1957, and April 1, 1967; (2) separate publications, the major portions of which are devoted to providing information about the newer educational media; (3) available on a national basis to anyone interested in obtaining them; (4) designed to inform potential users concerning availability and educational utility of one or more types of the newer media. The contents are: Newer Media Catalogs and Lists Generally Available; Newer Media Periodicals–A Selected List; Professional Organizations Concerned with Newer Media; Appendix: Newer Media Catalogs and Lists Published Since 1957 Which Are Out of Print in 1967. An index is included. **(331)**

Selected references–audiovisual publications (Kodak pamphlet no. S-10). Rochester, N.Y.: Eastman Kodak Company, June 1957. 22 pp.

The bibliography includes significant "recent" books and booklets with a brief annotation on each. It also lists selected periodicals carrying articles on the subject, but does not include individual articles. The publications are divided into four sections: I. Specialized Fields–Education, Business and Industry, Religion, Medical Sciences and Mental Health; II. Production; III. Projection and Utilization; IV. General Reference Sources for Motion Pictures, Filmstrips, and Television Films. **(332)**

INDEX

ADMINISTRATION
21, 52, 59, 61, 74, 88, 89, 92, 96, 102, 108, 116, 124, 129, 133, 143, 223, 282, 287, 309, 314, 315, 317-323, 325

AUDIO RECORDING (GENERAL)
4, 31, 33, 38, 40, 43, 50, 166

AUDIOTAPE RECORDINGS, RECORDERS, PLAYBACK
16, 33, 35, 37-41, 44, 45, 47-52, 54, 55, 173, 197-206, 262, 281, 291, 293, 294, 298, 302, 305-316, 325, 329

AUDITORY AIDS (GENERAL)
29, 33, 36, 45

AUTOINSTRUCTIONAL EQUIPMENT AND SYSTEMS
298, 300-316

BROADCASTING
4, 17, 43, 61, 90, 144

BULLETIN BOARDS, FLANNELBOARDS, FELTBOARDS
32-35, 37, 40, 230, 237, 244, 245, 255, 293

CAMERAS
38, 54, 166, 192, 194

CASE STUDY
119

CHALKBOARDS, DRAWING PADS, FLIP CHARTS
32-35, 37, 40, 45, 97, 252, 255, 293

CLINICAL DEMONSTRATIONS
118, 119, 134

COLOR
32, 38, 237, 241, 274

COMMUNICATION
4, 8, 18, 21-23, 27-29, 31, 33, 42, 45, 56, 68, 325

COMPUTERS 2, 4, 7, 8, 41, 44, 56-83, 86, 131, 144, 268, 290, 291, 315

CONFERENCES
62, 92, 100, 131, 151, 169

CONSULTATION
134, 141, 313, 324, 327

CURRICULUM DEVELOPMENT
67, 82

DEMONSTRATIONS
9-11, 13, 31-33, 36, 40, 65, 97, 118, 119, 134, 269

DESIGN, CONSTRUCTION, PREPARATION, PRODUCTION
15, 16, 21, 27, 31, 34, 35, 37, 38, 40, 41, 49, 93, 121, 132, 166, 190, 196, 234, 236, 264, 265, 271-274, 283, 285, 287-289, 297, 298, 304, 309, 319, 326, 332

DIAL ACCESS RETRIEVAL
153, 308-316

DISC RECORDINGS, RECORDERS
3, 12, 31, 32, 39, 43, 47, 49, 50, 54, 97, 296, 305, 325, 328, 330, 331

DISCUSSION (GROUP)
58, 118, 119, 146, 147, 156, 164, 169, 242

DISPLAYS, EXHIBITS
31-36, 40, 43, 45, 97, 208, 228, 229, 232, 236, 243, 245, 325

DUPLICATING PROCESSES
31, 34, 47

8MM FILMS
8, 41, 44, 171, 177-188, 213, 281, 301, 326

EQUIPMENT (GENERAL)
6, 8, 31, 33, 35, 38, 46-55, 227, 233, 248, 254-256, 262, 264, 267, 277-280, 284, 289, 290-316, 322

EVALUATION
21, 24, 25, 32, 35, 37-39, 58, 62, 65, 67, 71, 82, 88, 89, 100, 101, 105, 107, 120, 125, 151, 160, 164, 190, 296, 304, 305, 317, 323, 330, 331

FACILITIES
8, 25, 31, 33, 49, 52, 92, 98, 121, 130, 136, 143, 254-274, 276, 279, 280, 282, 284, 290-316, 320, 322

FIELD TRIPS, TOURS, TRAVEL
3, 32, 33, 35-37, 45, 313

FILMS (MOTION PICTURES)
1, 3, 5, 12, 16, 19, 26, 31-33, 35-39, 43-45, 47, 55, 58, 90, 104, 113, 118, 155-176, 180, 204, 255, 299, 305, 320, 323, 325, 326, 328, 330-332

FILMSTRIPS
3, 16, 31-33, 35-39, 45, 47-49, 55, 162, 171, 173, 174, 189-192, 255, 305, 323, 325, 326, 328, 330-332

FORUM
146

GAMES
25, 61

GRAPHIC AIDS (CHARTS, GRAPHS, DIAGRAMS)
5, 11, 13, 19, 31-40, 42, 43, 45, 92, 149, 208, 226, 239, 252, 253, 255, 301, 319, 325

GUIDES (INSTRUCTIONAL)
38

HISTORICAL DEVELOPMENT (AUDIOVISUAL TECHNOLOGY)
4, 30

HOME STUDY
197

INDIVIDUALIZED INSTRUCTION
2, 6, 56-83, 85, 259, 276, 277, 279, 282, 296, 298, 300-316

INSTRUCTIONAL KITS
35

INSTRUCTORS, TEACHERS (ROLE AND TRAINING)
1, 2, 5, 6, 8, 19, 29, 58, 67, 70, 71, 73, 74, 78-80, 85, 89, 92, 96, 98, 100, 102, 108, 109, 112, 115-117, 119, 120, 122, 124, 147, 149, 150, 165, 204, 288, 289, 291, 293, 296, 299, 307, 319

JOB INSTRUCTION
169

LABORATORY TRAINING, SENSITIVITY TRAINING
169

LEARNING RESOURCE CENTERS (INSTRUCTIONAL MATERIALS CENTERS, EDUCATIONAL MEDIA CENTERS)
37, 97, 143, 267, 275-282

LEARNING THEORY
4, 8, 9, 10, 11, 13, 16-19, 26, 28, 29, 31, 32, 34, 42, 45, 76, 77, 81, 156, 169, 265, 325

LECTURE
58, 63, 68, 118, 131, 148-154, 167, 178, 183, 269, 287, 291, 293, 306-316

LETTERING
38, 40, 213, 230, 236, 237, 241, 244, 247, 248, 252

MANUALS
33, 37, 40, 49, 50, 53, 160, 204, 304

MAPS, GLOBES
31-33, 37, 39, 40, 45, 47, 239, 241

MASS MEDIA (GENERAL)
17

MICROPHONES
97, 149, 150, 153, 292, 294

MODELS (MOCK-UPS, SPECIMENS, OBJECTS)
3, 10, 31, 32, 35, 37, 40, 45, 97, 249

MOTIVATION
16, 18, 19, 79, 164, 298, 309

MULTIMEDIA
35, 44, 45, 278, 279, 283-316

MUSEUMS
12, 33

OBJECTIVES (LEARNING)
3, 15, 29, 35, 67, 71, 79, 101, 121, 167, 275, 281, 283, 285

ON-THE-JOB TRAINING
5

OPAQUE PROJECTION AND PROJECTORS
32, 33, 37, 39, 40, 49, 50, 222, 255

OVERHEAD PROJECTION AND PROJECTORS
33, 35, 37-39, 41, 47, 49, 50, 207-224, 255, 294, 295

PART TRAINERS
5

PARTICIPATION
1, 156, 164, 165

PERCEPTION
12, 19, 21-23, 27-29, 42

PERFORMANCE AIDS
231, 298

PHOTOGRAPHY, PHOTOGRAPHS
4, 10, 31, 32, 37-39, 43, 236, 251, 281, 319, 325, 326

PICTORIAL AIDS, ILLUSTRATIONS
11, 13, 14, 16, 31-40, 45, 242, 250, 252, 328

POSTERS
32, 34, 37, 225, 229, 240

PROGRAMMED INSTRUCTION (THEORY, TEACHING MACHINES, TEXTS)
2-10, 12, 13, 16, 17, 25, 26, 31, 35, 41, 44, 45, 56-83, 93, 107, 304, 306, 328, 330, 331

PROJECTION PRINCIPLES, SCREEN SPECIFICATIONS
35, 45, 46, 49, 50, 248, 251, 255, 266, 270, 274, 291, 297, 299, 323, 326, 332

PROJECTION VARIATIONS (REAR-PROJECTION, REMOTE-CONTROL, MULTIPLE SCREEN)
54, 274, 290, 291, 293, 295, 297, 299, 302, 326

PROJECTORS (FILMSTRIP)
33, 47, 49, 50, 53, 295, 298, 304, 306

PROJECTORS (MOTION PICTURE)
33, 39, 43, 47, 48-50, 53, 295, 305

PROJECTORS (SLIDE)
33, 47-51, 53, 294, 295, 298, 305, 306, 326

QUESTIONING
58, 69, 147, 152, 156, 296, 298, 306

RADIO
3, 12, 31, 32, 37, 39, 44, 50, 89, 145, 147, 204, 295

RESEARCH
1, 3, 7, 8, 12, 16, 17, 19-21, 24, 58, 60, 62, 64, 65, 67, 68, 72, 77, 82, 87, 91-96, 98, 104, 105, 107, 129, 131, 145, 151, 152, 156-159, 161, 164, 167, 200, 203, 243, 283, 286-288, 292, 298, 304, 306, 325

ROLE-PLAYING, SOCIODRAMA, SKITS, DRAMATICS
31-33, 115, 119, 120, 169, 242

SATELLITES (FOR BROADCASTING)
90, 96, 126

SELECTION OF AIDS
3, 5, 15, 21, 31, 35, 36, 42, 43, 330, 331

SEMINARS
134, 293

SIMULATION
20, 25, 36, 56, 59, 61, 109, 112, 119

SLIDES
3, 31-40, 45, 47, 49, 58, 148, 192, 193-196, 255, 296, 299, 301, 305, 325, 326, 328, 330, 331

SOURCES (AIDS, MATERIALS, EQUIPMENT, INFORMATION)
31, 32, 35, 37-40, 45, 47-49, 52, 123, 168-177, 196, 199, 201, 202, 205, 213, 217, 229, 244, 246-250, 324-332

SYMPOSIUM
5, 59, 74

SYSTEMS (INSTRUCTIONAL)
7, 8, 20, 56-83, 271, 273, 275, 283-318

TEAM TEACHING
291

TELEPHONE INSTRUCTION
41, 143, 148-154, 293, 308-316

TELEVISION INSTRUCTION
3, 5, 6, 8, 12, 16, 26, 31-33, 35-39, 44, 45, 47, 58, 84-145, 153, 166, 171, 325, 328-332

TELEVISION EQUIPMENT AND FACILITIES
86, 89, 90, 110, 111, 114, 120, 125-144, 165, 274, 293, 308

TERMINOLOGY, GLOSSARIES
4, 31, 32, 35, 38, 41, 60, 88, 99, 114, 129, 139, 160, 166, 204, 205, 218, 219, 236

TEXTBOOKS, WORKBOOKS
5, 6, 16, 19, 31, 43, 58, 151, 312

TRAINING AIDS AND DEVICES (MILITARY USE)
5, 15, 24, 26, 42

TRANSPARENCIES
3, 33, 35, 37, 38, 40, 47, 49, 51, 207-224, 326, 330, 331

VERBAL SYMBOLS, PRESENTATIONS
9, 10, 16, 28, 29, 32, 36, 45, 161, 164

VIDEOTAPE RECORDINGS AND RECORDERS
41, 48, 86, 90, 102, 108-125, 143, 293, 308-316, 330, 331

VISUAL AIDS (GENERAL)
9, 11-13, 16, 19, 21, 28, 32, 42, 92, 106, 121, 147, 152, 234, 239, 241, 251, 326

WORKSHOPS
41, 313

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